

# VIRGINIA:S

Discovery of  
SILKE-VVORMES,  
with their benefit.

AND  
The Implanting of MULBERRY TREES;

*Also*  
The dressing and keeping of Vines, for the rich Trade  
of making Wines there.

*Together with*  
The making of the Saw-mill, very usefull in *Virginia*,  
for cutting of Timber and Clapbord, to build with-  
all, and its conversion to other as profitable Uses.



---

LONDON,

Printed by T. H. for John Stephenson, at the Signe of  
the Sun, below Ludgate. 1650.

10/10/10

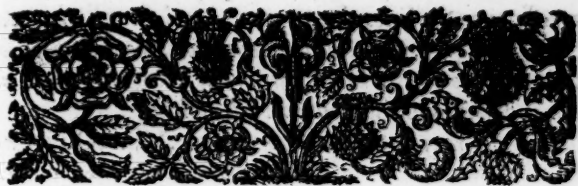
20110501

W. H. Smith & Co.

2015-11-11 11:11:11

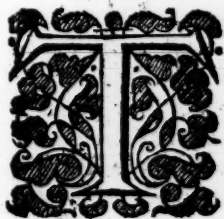
20. 21. 22. 23. 24. 25. 26. 27. 28. 29. 30. 31. 32. 33. 34. 35. 36. 37. 38. 39. 40. 41. 42. 43. 44. 45. 46. 47. 48. 49. 50. 51. 52. 53. 54. 55. 56. 57. 58. 59. 60. 61. 62. 63. 64. 65. 66. 67. 68. 69. 70. 71. 72. 73. 74. 75. 76. 77. 78. 79. 80. 81. 82. 83. 84. 85. 86. 87. 88. 89. 90. 91. 92. 93. 94. 95. 96. 97. 98. 99. 100. 101. 102. 103. 104. 105. 106. 107. 108. 109. 110. 111. 112. 113. 114. 115. 116. 117. 118. 119. 120. 121. 122. 123. 124. 125. 126. 127. 128. 129. 130. 131. 132. 133. 134. 135. 136. 137. 138. 139. 140. 141. 142. 143. 144. 145. 146. 147. 148. 149. 150. 151. 152. 153. 154. 155. 156. 157. 158. 159. 160. 161. 162. 163. 164. 165. 166. 167. 168. 169. 170. 171. 172. 173. 174. 175. 176. 177. 178. 179. 180. 181. 182. 183. 184. 185. 186. 187. 188. 189. 190. 191. 192. 193. 194. 195. 196. 197. 198. 199. 200. 201. 202. 203. 204. 205. 206. 207. 208. 209. 210. 211. 212. 213. 214. 215. 216. 217. 218. 219. 220. 221. 222. 223. 224. 225. 226. 227. 228. 229. 230. 231. 232. 233. 234. 235. 236. 237. 238. 239. 240. 241. 242. 243. 244. 245. 246. 247. 248. 249. 250. 251. 252. 253. 254. 255. 256. 257. 258. 259. 260. 261. 262. 263. 264. 265. 266. 267. 268. 269. 270. 271. 272. 273. 274. 275. 276. 277. 278. 279. 280. 281. 282. 283. 284. 285. 286. 287. 288. 289. 290. 291. 292. 293. 294. 295. 296. 297. 298. 299. 300. 301. 302. 303. 304. 305. 306. 307. 308. 309. 310. 311. 312. 313. 314. 315. 316. 317. 318. 319. 320. 321. 322. 323. 324. 325. 326. 327. 328. 329. 330. 331. 332. 333. 334. 335. 336. 337. 338. 339. 340. 341. 342. 343. 344. 345. 346. 347. 348. 349. 350. 351. 352. 353. 354. 355. 356. 357. 358. 359. 360. 361. 362. 363. 364. 365. 366. 367. 368. 369. 370. 371. 372. 373. 374. 375. 376. 377. 378. 379. 380. 381. 382. 383. 384. 385. 386. 387. 388. 389. 390. 391. 392. 393. 394. 395. 396. 397. 398. 399. 400. 401. 402. 403. 404. 405. 406. 407. 408. 409. 410. 411. 412. 413. 414. 415. 416. 417. 418. 419. 420. 421. 422. 423. 424. 425. 426. 427. 428. 429. 430. 431. 432. 433. 434. 435. 436. 437. 438. 439. 440. 441. 442. 443. 444. 445. 446. 447. 448. 449. 450. 451. 452. 453. 454. 455. 456. 457. 458. 459. 460. 461. 462. 463. 464. 465. 466. 467. 468. 469. 470. 471. 472. 473. 474. 475. 476. 477. 478. 479. 480. 481. 482. 483. 484. 485. 486. 487. 488. 489. 490. 491. 492. 493. 494. 495. 496. 497. 498. 499. 500. 501. 502. 503. 504. 505. 506. 507. 508. 509. 510. 511. 512. 513. 514. 515. 516. 517. 518. 519. 520. 521. 522. 523. 524. 525. 526. 527. 528. 529. 530. 531. 532. 533. 534. 535. 536. 537. 538. 539. 540. 541. 542. 543. 544. 545. 546. 547. 548. 549. 550. 551. 552. 553. 554. 555. 556. 557. 558. 559. 560. 561. 562. 563. 564. 565. 566. 567. 568. 569. 570. 571. 572. 573. 574. 575. 576. 577. 578. 579. 580. 581. 582. 583. 584. 585. 586. 587. 588. 589. 590. 591. 592. 593. 594. 595. 596. 597. 598. 599. 600. 601. 602. 603. 604. 605. 606. 607. 608. 609. 610. 611. 612. 613. 614. 615. 616. 617. 618. 619. 620. 621. 622. 623. 624. 625. 626. 627. 628. 629. 630. 631. 632. 633. 634. 635. 636. 637. 638. 639. 640. 641. 642. 643. 644. 645. 646. 647. 648. 649. 650. 651. 652. 653. 654. 655. 656. 657. 658. 659. 660. 661. 662. 663. 664. 665. 666. 667. 668. 669. 670. 671. 672. 673. 674. 675. 676. 677. 678. 679. 680. 681. 682. 683. 684. 685. 686. 687. 688. 689. 690. 691. 692. 693. 694. 695. 696. 697. 698. 699. 700. 701. 702. 703. 704. 705. 706. 707. 708. 709. 710. 711. 712. 713. 714. 715. 716. 717. 718. 719. 720. 721. 722. 723. 724. 725. 726. 727. 728. 729. 730. 731. 732. 733. 734. 735. 736. 737. 738. 739. 740. 741. 742. 743. 744. 745. 746. 747. 748. 749. 750. 751. 752. 753. 754. 755. 756. 757. 758. 759. 760. 761. 762. 763. 764. 765. 766. 767. 768. 769. 770. 771. 772. 773. 774. 775. 776. 777. 778. 779. 780. 781. 782. 783. 784. 785. 786. 787. 788. 789. 790. 791. 792. 793. 794. 795. 796. 797. 798. 799. 800. 801. 802. 803. 804. 805. 806. 807. 808. 809. 810. 811. 812. 813. 814. 815. 816. 817. 818. 819. 820. 821. 822. 823. 824. 825. 826. 827. 828. 829. 830. 831. 832. 833. 834. 835. 836. 837. 838. 839. 840. 841. 842. 843. 844. 845. 846. 847. 848. 849. 850. 851. 852. 853. 854.





To all the VIRGINIA Merchants ,  
Adventurers, and Planters.

Gentlemen :



*THE unhappinesse to be amongst the low-  
est of men, for parts and fortune, can-  
not hinder mee from the satisfaction  
which I receive in my selfe, that none  
is possessed with a more eager passion of  
contributing towards the advancing  
Virginia to that degree of felicity  
which the bounty of nature, richnesse of  
soyle, and temperature of Climate designed her to: and were my  
power but of as strong a wing as my inclinations and desires,  
that above-example Countrey should be placed in such a Zenith  
of stability, wealth, and glory, that it should behold all the  
other Nationall happineses of the world in a Sphere beneath  
her; and her Merchants Adventurers and Planters, like so  
many Load-starrs to conduct Mankinde into an innocent O-  
cean of unsathom'd wealth of unrocky prosperity.*

*No Countrey under the Sunne is lesse ingratefull then  
Virginia, if she be but justly courted, but to Complement a  
Virgin for her affection by breathing smoake in her nostrils,*

to expresse our Civilities by Vapour; and for all that vast Dowry of spaciousnesse, wealth, bounty of aire, and plenty of provisions, to proffer her a joynture of Tobacco, is a Complement indistinguishable from incivill rudenesse.

What Riches may not the Silke-worme, Vine, Olive, and Almond afford us? By these noble undertakings wee contract China two thousand Leagues nearer to us, and are not troubled though Spaine and Italy were remooved five thousand more distant from us: and if wee could not satisfie the implacable curiosity of our Senses without the Easterne Spices, it is without dispute, that what every Orient hath of Aromatick, would grow without any deterioration in this incomparable Countrey.

Yet if, by some occult propriety of nature, these Spices, and Gummes should not prosper with that successe in the Countrey to which they are onely adoptive, as where they are naturall: The South Sea flowing upon the skirts of this gloriously apparelled Virgin, would not onely furnish us, but (through our meanes) all the Western world with whatever the Philipines and China have in their tron, or tosome: which that it may be discovered, a Publique encouragement from the Merchants here, and the Colony there, would awaken all spirits which have any scintillation of Honour, or industry, to undertake the employment, effect it undertaken, and by the effect raise an unpersishable structure for their owne glory, perpetuated by the publique felicity.

The greatest defect that Colony can with consent complaine of, is their want of shipping, and the greatest wish which others finde themselves perplexed, is the want of industry to build them. If Virginia had not as stately Timber as any other Region whatsoever: if it had not a Soyle naturally inviting them to improve her in Iron for Gunnes, Anchors,  
and

and other conveniences; in Hempe for Cordage, Flax for Canvas, and Pine trees for Mast: this defect might be allowed for all: but where all these concenter, it is as unreasonable to complaine, as for a man seated at a Table covered with excellent provision, to accuse his fortune for suffering him to perisb with hunger, because his meat is not digested in his stomach, without putting his hands and teeth to labour.

I could cordially wish that there were such quantity of cleared ground in Virginia, that every one at his first arrivall might fix upon the Plough, that the so much discowfed of Staples of wheat and Rye, might be brought to an absolute ripenesse of perfection: But to imagine so many millions of trees of a facile removall, or that old Planters knowing the benefit thence arising, should part with them to others, and seeke new uncleared grounds for themselves, were meere to dreame of impossibilities.

But the Vine, Almond, and Olive, may be set where the tree is onely barked about to hinder it from leaving; besides if there were a necessity to have absolutely cleared grounds, (which reason it selfe cannot imagine,) yet foure Acres of ground so cleared for the Vine, will returne (by much) more profit, and lesse trouble, then twenty Acres of wheat, at such rates as they are prized in the common estimation.

But since this profit reverts to the Purse without the toyle of eradicating trees, as great emolument, as if the ground were above her treelesse, to what purpose should we court sweat and affliction? or increase our miseries without any addition to our happiness?

Gentlemen, the happinesse of this Nation depends upon your constancy and prosperity, if you seriously erect these staples, wee shall be free from the imperious usurpations of forraigne Prin-

ces upon your estates, and shipping, from the rapine of Pirates upon your lives or liberties. The decayed number of our shipping may be resupplied by encouragement of Carpenters of all Nations, to make use of those materialls which the inimitable liberality of this Countrey gratefully presents you with: all Staples (diffusively spread in other Regions) will meet here united, and we shall arrive to that degree of happinesse, to make our intrade by much exceed our exportations: for the compleating of which, if such an inconsiderable, and lost thing as my selfe, could be any way instrumentall, I should as cheerfully hazard my life in the employment, as I now subscribe my selfe,

Your ready, faithfull, and

most humble servant,

ED. WILLIAMS.

*The*



## The Discovery of Silke-wormes ; with their benefite, and implanting of Mulberry trees.



**T**H E Mulberry tree, yielding the sole food of this excellent Worme, must first bee provided for, whereof there are Myriads dispersd in the wide Continent of *Virginia*, which may bee collected by transplanting, grafting or nursing.

For transplantation there are infinite advantages both of well-growne and springing Mulberry trees, which may with much facility be removed, and with great felicity thrive upon such a removal, of which experience can afford frequent examples.

The Grafts must bee chosen from excellent good Plants which expresse a large fertility, and bee something large of themselves, by which election there will bee a greater certainty of the goodnesse, and a more speedy expectation of growth in those Grafts, which thrive better when grafted one upon another, then upon the Chestnut, Apple-tree, Elme, White Poplet, or any other, which if they are not mortally opposite, are however praternaturall to the Silke-worme.

The Nurseries have so much of tediousnesse and difficulty, that I shall hardly advise to put it in practice; yet to those who have a stronger credulity then my reason can perswade mee to, I shall offer the sole expedient of effecting it, if that may bee called aply an expedient, which hath so little of expedition in it.

Let the Person designs to make a Nursery, observe, and gather such quantity as will suit with his necessity, of the ripest Fruit

growing upon those Trees which beare the fairest and roundest leaves: These thus gathered, you must wash in two or three waters, pressing them with your hands, by which meanes you shall finde the expresseed seede in the bottome of the water: I accede more to the sowing of the Mulberries whole without such expression, however, either the Mulberry entire, or the seede may bee sowed after the manner following.

A bed of fat earth being digged, husbanded, and the Mould brought into a small Powder, must have strait Rowes or Lines in Furrowes, all halfe a foot equally distant every Furrow two inches deepe, and foure broad, this distance may bee something larger that an intervall may bee made to the Water in the weeding of such things as may hinder the Mulberries growth by participating in its aliment.

A great care must bee had to water it often for the first year, if the weather be dry, the succeeding year you may pull up and transplant your Mulberry trees into another ground more at large, viz. at two or three foot distance, which must bee not retransplanted till the growth arise to some six inches in the circumference, at which bignesse you may remove them to the ground designed for their constant fixation, leaving betwix each Tree a distance of sixteene or twenty foot, that the too much vicinity may not make the extending branches mutually inconvincible either by exclusion of a full Sunne, or wound themselves by intertangence of one another. In such warme Countries as that of *Virginia*, the Root must bee preserved coole and moyst, by a deeper implantation then is usual in colder Regions.

For the election of your Plants or Sciens you may take notice of two Families, or Races, of Mulberry trees, the black, and the white, discordant in Wood, Leaf, and Fruit; onely having this in common to spring later then other trees, as never emitting their leaves till all apprehension of cold is vanished, the black Mulberry is not subdivided into any other species having the wood solid and strong, the leaf large, and rude in the handling, the fruit black, great, and acceptable to the Palate: But there are three apparently different species in the white, distinguished onely by the colour of the fruit, namely, white, black, and red: Yet is this fruit by

much leſſe grateful to the palate then that of the black Mulberry. No other diſtinction beſides, the colour of the fruit diſcernes them one from the other, the Leaves of all three being of the ſame meane greatneſſe of the ſame ſmooth feeling, the wood of the ſame internall yellowneſſe, almoſt as fine as that of the black Mulberry.

But the ſilke taking his quality from the leafe make us lay aſide the black Mulberry tree, ſince the bottomes from thence are too groſſe and heavy, whereas the white Mulberry makes ſilke fine and light, to temper which many feed the Wormes with two ſorts of meats by diſtinction of times, *viz.* at the beginning with white leaves, that the ſilke may bee fine, in the cloſing, with black to fortifie it, and make it weigh: Yet this though it have an appearance of reaſon at the firſt inſpection, rarely answers the expectation, the very alteration of the meate as from that which is more delicate, to that which is more groſſe, being diſagreeable to the nature of the Worme, who muſt ſee that diminution in the quality of his ſilkes which hee fees in the impairing of his nutriment. Others make a contrary application of leaves by a more (imaginative ſolid foundation) which is to begin their dieting with black, and conclude with white; which cannot ſucceed better, for the black having diſpoſed the matter of the ſilke, the white leaves after adminiſtered have no power to alter that ſeminal diſpoſition.

Wee ſhall therefore fixe upon it as a Principle of Nature, not to vary the nourishment of this induſtrious Creature. If wee begin with the black Mulberry, the continuance of it will bee neceſſary. If the Ground you poſſeſſe bee already planted with black Mulberries, it is ſo much loſſe of time and expences to replant white: But if wee are to commence a thing *de Novo*, every mans reaſon leading him to chuiſe the moſt profitable, and common experience telling us that the white antecede the black ones ſo incredibly in the poynt of Maturation, that ſix years of growth advance not ſo much the latter as two the firſt; it were an act declaring Bethſhem for Dictator, not to prefer the moſt ſpeedy and profitable before the tedious and improper commodity. Beſides which Emplument the Branches which by that ſpeedy ſhoot they bring



forth will bee usefull for propagation of that tree to infinite Numbers.

There is yet experimentall election amongst the white Mulberries. Some affirming that the Leaves of those trees which emit the white fruit are fittest to bee assigned for this nourishment, which they fortifie by this reason; That Pullen and Swine doe most delight in the white, and never eat the red and black but by constraint, a conjecture not altogether irrefragable; for why may it not bee controverted that Pullen and Swine being a greedy Generation, may rather ballance that which is most grosse and fulsome, as best adapted for their Palate, then that which is nice, and suble, and best according to the delicate tendernesse of this Creature? Others who have their owne experience to fortifie their assertion, commend the white Mulberry bearing the black fruit, the colour demonstrating a better concoction in the fruit, and consequently in the leafe then the others.

But (which wee must bee extremely curious in) wee must expell from our yard all Mulberry trees bearing leaves too much indented, which, besides that it is an apparent signe of small subsistence and uncompleated nature, is more defective in quantity and quality of nourishment, then that which is lesse interruptedly circular: Yet this may easily bee remedied, if you ~~transplant~~ such trees in the Bud, or *Escutcheon*, having neede of such freedom; the profit thence arising being very considerable for this kinde of nourishment: For by this course that inconsiderable quantity of worthless and famelick leaves receives a happy melioration into an abundant plenty of substantiall and nutritive nature. Not is this transmutation improper, for any other Orchard Plants which will succcede to your most advantagious expectation, and all indomestick and wild trees may by this bee made capable of a most happy cultivation. This infranchizing may bee practised to the answer of your desires in Mulberries of all Ages: In the older, on their new shoots of the antecedent yeare then lopped; in the younger upon the smallest trees of the Nursery. But to graft these trees in the first season, that their growth will permit it, is most opportune and profitable; for by this meanes your Groves of Mulberry will bee in a more directly delivered from all apprehension of jejune sterility, or insubstantiall



stant all deficiency : Nor can ever you feare a want of supply, if you constantly maintaine a Nursery of such Grafts, not from the seeds, but from the shoots and branches of your best trees thus propagated to an unperishable infinity by couching them in the ground, and the trees encreasing by their reimplanting are constantly furnished with Leaves of an excellent sweetnesse and greatnesse, exquisitely abundant in nourishment, and consequently exempt from all the inconveniencies which walke hand in hand with an ingratefull wildnesse. Having described what Trees, Grafts, and Nurseries are best conducent to our mystery; let us next dilate of their most proper soyle, and best order in planting.

*The best soyle and order for planting the Mulberry.*

**F**OR the soyle it must bee chosen in particular much like that of the Vines, inclining rather to dry then moyst, light then heavy, sandy then clayie; for those which opinionare themselves that a fat ground is inconvenient to Mulberries, as supplying leaves of too grosse and unsuabeile alimient; The Objection is pritty, but under pardon scarcely solid, neither am I capable of any reason to the contrary, why a rich soyle should not enric the growing Trees with a greater maturation and bignesse, then a leane Plantation, where the tender Plants are even starved with the sparseness of distributive moysture and alimient: Yet to prevent the too grosse substance of the leafe after the tree by the advantage of a rich nourishment, hath arrived to a competent greatnesse; the order which wee shall prescribe in their planting will admit the Plough amongst them, where cultivation will easily take off the soyle from all exuberancy of fullsome ranknesse. The soyle which is full of Springs, Lakes, Rivers, or (which is worst of all) Marshes, is particularly to be avoyded.

The manner of implanting them would require a distance of foure fathomes or more, which in *Virginia* where wee labour not under a penury of ground, may bee something more spaciouly enlarged; the Reasons why this extent of distance are: First, the intermixture of spreading Branches, where by their contingency they violate and mutually wound themselves will bee avoyded.

Next, the Sunne hath a more unimpached immission and distribution of his Beames, with which this tree is most particularly delighted. Lastly, this largeness of intervalls permits a free passage for the Plough, to take off all luxuriancy of rankness, which too much inspissates the leaves, which must feede this admirable Creature.

But of such Graines as may with least impairment, bee sown under the Mulberry trees, Oats and Pease are the most proper, which during the collection of the leaves may with very small detriment bee trodden upon (the season commonly falling in April and May, when their blades are backward) may the very compresse of the Earth makes them afterwards arise more strongly.

I approve much more of interplanting the Vine; but (which I conceive the most convenient for *Virginia* is) the setting of the Indian Potato hath the most inestimable benefit; the Potato having such a happy multiplication of and in it selfe, that whilst there is but a string of the Root left behind in the earth, the species will bee renewed. Besides the excellency of the food, whether for man, or (where such a vast abundance may soone introduce a satiety) Cattle will bring along with it an inestimable advantage; whereas Corne may too strongly impoverish a Ground, and the Vine it selfe when it comes to its ripest excellency, will want the compleat comfort of the Sunne beames to give fruit a well concocted maturity, the Mulberry like an Ambitious Grandee, engrossing all that favour to himselfe by his prevalency of height and greatnesse.

Nor should wee bee too curious to plant the trees one over against the other exactly opposite; but (still observing for beauties sake to set them in a right line) rather one against the Intervall of the other, that so the Sunne may have no interposition from any Angle, to warme, comfort, and enrich this tree, which aides the production of so many incomprehensible Miracles.

#### *The order for collection of the Leaves.*

**T**He order to bee observed for collecting the leaves should bee precisely insisted upon, that the trees may bee of longer and more

flourishing duration, and the food of a more curious and unsoyled nourishment: It is a truth not to bee denied; that the disleaving of trees is extremely prejudiciall; and in some irrecoverably deadly; the reason is their extraordinary scorching, by being left without any shade of protection: But the Mulberry being (as it were) destined to this worke which it naturally supporteth, more inprejudicially endures this temper of disleaving then any other trees whatsoever. But for the obviation of this inconvenience, it will bee absolutely necessary for our Master of the silkworme, to have such a proportionable number of trees, that the halfe may alternately repose unplucked every second yeare. This diligently put into practice will make your trees continue verdant and vigorous for many Generations.

To gather them with both hands leafe after leafe, is confessedly the most proper, but yet withall the most expencetfull; for the multitude of hands which such a circumstantiall labour would exact.

The other way of gathering them with stripping them from the branches, is without doubt extremely nocent to the tree, and worm: to the tree by unbarking, wounding, and perishing its branches. Nor is it lesse detrimental to the Worme seeing this disorderly collection corrupts and sullies the leaves, which this delicate nice Creature perceiving, either rejects them, or sickens upon their reception by bruising the leaves, and expressing that which is the life of its substance, the juice, and this commonly with unwashit hands, which leave the ill odour unremoveable upon them.

The removall of these inconveniences is easily effected by following the course they practice in some parts of Spaine, which is by clipping the leaves from the branches with a sharpe instrument, like a Taylors sheares; by this way you disleave many stalkes at once, which falling into a cleane sheete spread under that tree for the purpose, seperating afterwards the leaves also, such as are sound from unsound, such as peradventure have much of the stalke, from those which are nothing but leafe, (the stalke being hurtfull to this tender Creature) and administred to them the Sunny side of the leafe upward is the most commendable practise of gathering and feeding that hath hitherto been delivered.

The

The leaves of the old Mulberry are to bee much prefer'd before those which are not come to an absolute perfection; the age of perfection in the Mulberry, we reckon to be accomplished in seven or eight yeares, as to soundnesse of nourishment; not that they grow not after, but by that time it is growne powerfull to concoct such succulency as might before over master it.

The trees disleaved must by a diligent hand be pruned immediately after the last collection; what ever is broken, wounded, or made unprofitable must bee carefully cut off. The extreames of all the branches must be top'd a little with a sharpe pruning knife, which is an invitation to nature to send forth the next yeare more vigorously. But whether it be in gathering the leaves, or pruning the trees, it must bee our principall care that they be intirely beared, the omission of which, by not taking all the leaves off, turnes back the liberallity of the repeating Spring. This observation hath been grounded upon practise, made so successfull by experience, that it hath been found, that trees after such culture and disleaving, have within a month attired themselves with such a new border of leaves, that the former imbalding them hath been imperceptible.

Which induces me to believe a former assertion, that it is possible to have a second silke harvest by this meanes, and why not equall with the first, I know not, since the seed is more youthfull and vigorous then that of the yeare preceding growne feeble by its continuance.

The raines if they fall about the time this noble creature drawes unto her perfection and period, is by much more strangely prejudiciall, then when they are in the greatest of their feeding, the wet leaves occasioning them many desperate diseases: the usuall way of prevention is to have a provision of leaves before hand, when there is any jealousie of rainy weather; but this provision must be laid in a cleane dry place which is fresh aired, and that we may remove all dangers of contracting too much heat, to be turned often, which course, although the Raine should not oppresse us, yet is it of great conveniency, not so much out of apprehension to be necessitated, as for the quality of the food, it being much better after fourteen or fifteen houres resting in a place cleane and arie, then  
when

when fresh from the tree. But if you are surprized by an unexpected season of wet, take those Mulberries which you intend to lop the next year, (and the Mulberry would be lop'd every ten or twelve years, which revives and strengthens the tree with a new youth) and cut their branches which hung up in a drie corner, either of your house or barne, or any other coverture in airy places, will soone have their leaves drie, better condition'd, and of more efficacy then any leaves set to a fire, which is too suddaine, or to winnowing by a winde artificiall and unnaturall.

The Mulberries chiefe profit consisting in the lease, we must be carefull to lose nothing of this revenue; which considered, wee should delay the disheading or lopping of them till the Wormes have done feeding, which would be about the latter end of *May*, or the beginning of *June*, and although by the disbranching of them in such a season, we cannot expect such large returning shoots as those which were cut in *February* or *March*, the distance of time being materiall in their growth, yet the profit of the leaves being double, very well answer such inequality. The Mulberry being of so franke and plyable a disposition, that notwithstanding its amputation in unseasonable Moone and weather, no injuries shall hinder him from Regermination.

Yet are not these advantages (no necessity obstructing them) to be omitted by any which are not enemies to their owne profit. The Mulberries in the increase of the Moone pouled, or lop't, bring forth their young shoots long without spreading Branches; in the Wane short, with many little Branches crossing the principall. To reconcile this (the election of the time being in our power) the Mulberries seated in leane grounds, are most properly disheaded in the new Moone; those which are planted in rich ground, in the last quarter; so will those in the leane soyle emit shoots as long as the barrenness of the place will afford them; and those of the latter, through the benefit of their seat, conveniently regaine that which they would not easily have done, cut in the increase; For those aspiring branches, were they not restrained by the counter shoots who participate with them in nourishment would by reason of their unwieldy length, be forced to bend downewards to the deforming of the tree from the shape of a Mulberry into that of a Palme-  
C  
tree,

tree, which is not to bee feared in the rest, by reason of the leanness of the ground, forbidding all abundance of shooting : Wee have provided for the feeding of this little and great Artificer, let us now expresse an equall care in his lodging.

### *The lodging of the Silke Wormes.*

**T**HIS a vanity to expect emolument from this mysterious Creature, if wee sort him not with a lodging proper and agreeable to his nature, who can with no lesse disprofit bee ill accommodated in his habitation, then in his nourishment; who to show a particular affaiey with the noblest of Creatures, Man, makes his affection of habitation equall to his. Spaciousnesse, pleasure, healthfulness, distance from offensive vapours, damps and humidities, warmth in the extreames of colds, coolenesse in the extreames of warmth. What ever wee naturally desire and abhorre, does this Creature by the prosperity or infelicity of his labour show a most experimentall resentment of.

His station therefore must bee in the meane twixt the top and bottoms of a foundation, the first being too much obnoxious to heats or windes, the second to colds and Damps. The Platforme therefore of your building his station must be so contrived, as to have his Basis three or foure foot above the ground, nor ascending within an equall distance of the Tiles. A Fab-ick (saith *De Serres*) of seven fathome in length, three in breadth, and two in height, will entertaine with ease the Wormes enlivened from ten ounces of seed : this proportion may be raised according to your seed. In VIRGINIA these may be of very sudden erection; Nature hath furnished that excellent Countrey with materials, to invite all who have the desire to attempt it.

That the aire and winde (if coole and dry) may have free passage to refresh these laborious spinners; who near upon the perfection of their worke are upon the point of stifling. (the season, and the abundance of the silke wherewith they are filled, both cooperating therunto) Wee must have windows opening to all Angles to receive unsuspected infigurations in extremities of heat, and warming transpiration in immoderate colds; Yet with this

*Proviso,*



*Proviso*, that these windowes bee fit not onely to receive any favourable aire; but to expell all noxious vapours; and because this Creature loveth any thing that is white and luminous, it will soe excellently well with his disposition and safety, to parget or plaster the inside of the house very well and smooth, both to satisfie the eye and preserve him from the danger of Rats, which cannot clime up such a wall, though a principall care ought to bee used that the severall stations on which they are lodged, bee remote from all fixures to walls, which might give Rats and Mice advantage.

To build the Scaffolds containing these Wormes: Many Pillers of Carpenters worke directly squared, shall bee perpendicularly erected, from the ground to the ceiling, to support the Tables which crossing the pillars upon little joynts sixteene inches distant one from the other (except that from the ground which must bee 36 inches.) Upon these Tables doe wee lay our Wormes, but their boards must not bee equall in breadth, every table as it exceeds in height, being to bee narrower then the next below by foure inches, and the highest approaching the ceiling to bee narrowest of all. This Pyramidicall forme is of most beaury and safety to the Wormes; when wandring upon the Edges from one end of the Scaffold to another, seeking a fit place to vaine their like, they fall in such a preeipice from the higher scaffold to the ground, that they break themselves in pieces: But by this means falling but from one scaffold to another, the smallnesse of the distance contributes to their preservation. The breadth of the most lowest table shall bee limited even to this proportion, that easily of one side a man with his hand may reach the middle to attend the Wormes; as for the ascending scaffolds their continuall diminution makes the serving of them of greater easinesse.

A Roomes of any capacity will admit severall of these scaffolds (distinct from the wall for reason before recited of Rats) and also that the attender may come on either side of the scaffold, such space being alwayes to bee left betweene their position.

These scaffolds must bee made of an unsuspected firmnesse, to prevent the falling downe of any part of it, or the whole either by the ladder which the Keeper ascends, or the weight of the Worms themselves,

themselves, when once growne great and heafty.

To ascend these scaffolds, some make boards about them, as it were by Galleries, others have their getting up to them by little staires appropriated to this; others by formes. I approve of none more convenient then a light ladder which fits all, and possesses but one place.

The timber fittest to employ in the tabulare of this scaffolding is usually firre or such light wood: In VIRGINIA I apprehend none fitter then Cedar or Cypresse, because of their delicious odours.

Wee have already spoken of such meanes as may refresh the overheated worrne; rests now to deliver an experiment to warme the Aire, this Creature being no lesse Enemy to cold in the beginning of his apprentissage, then to heate when hee is ready to goe out of this World Master workman.

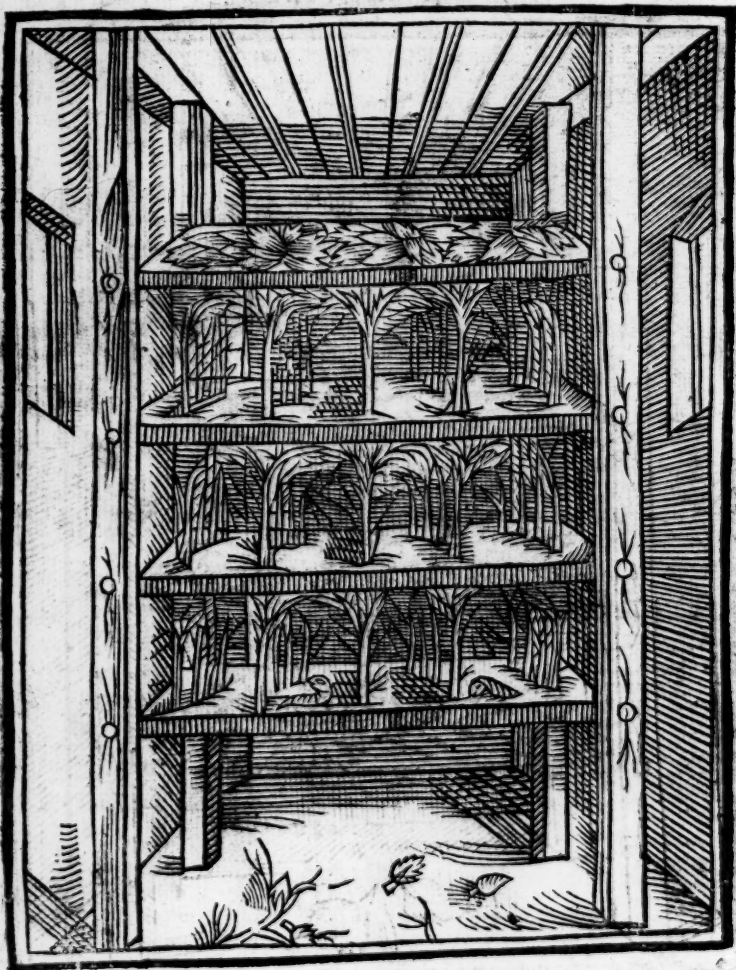
After having built your house for worms, let there be a hole pierced through your wall, where you must make an Oven, the mouth whereof must be on the outside of the house: Then before you make it off, take pots like flower pots, but such as will endure the fire, and lay them with the mouth side of these pots tending inwards towards the house, and the bottome within the Oven, lay these at an equall distance, and worke up the Oven with the pots incorporate therewith. This done you may make a fire in the Oven, which by the benefit of the pots conveyes all the heate to you, without any inconvenience of smoake. To make this heate the more agreeable to the Wormes, and to keepe the house in a temperate and inoffensive warmth, you may put into these pot-branches of Rosemary, Thyme, Roses, Juniper, &c.



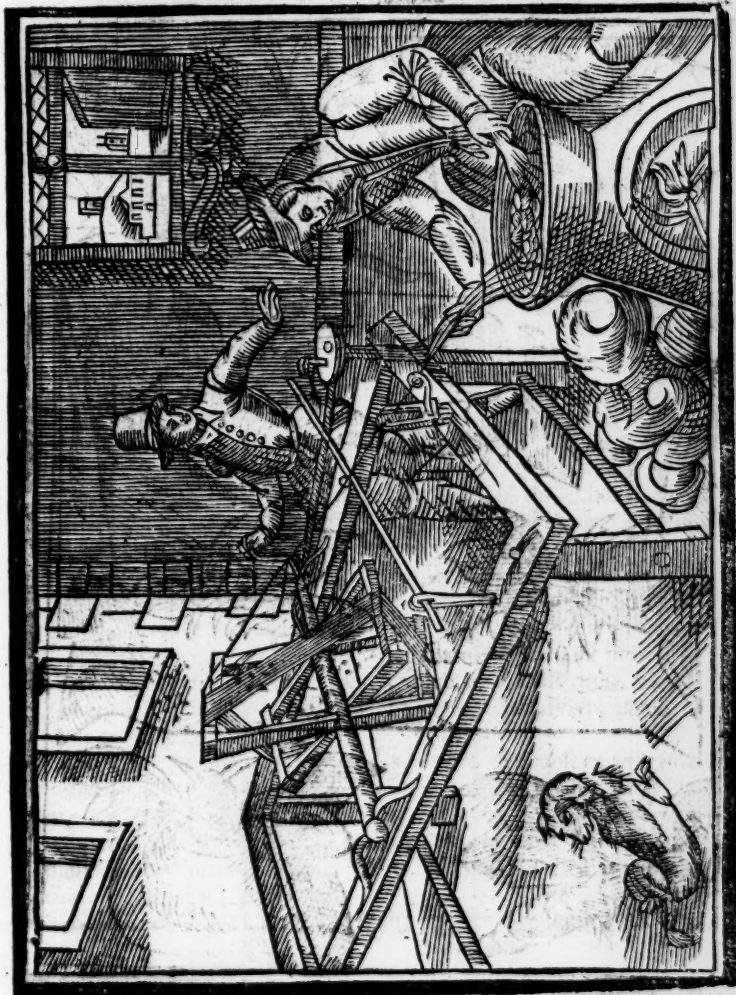
This Figure sheweth the order for raking the Tables on the Scaffold, to lay the Leaves on, for feeding the Wormes.



This Figure sheweth how to place the Rods, betwene the Tables, for the Wormes  
to climbe up, and spin their silke.



This Figure representeth the Engine, to wind off the silk from the Cods, with  
Furnaces and Cawlderns necessary thereto.



This Figure portrays the Cods, with the Butterflies come forth of them, to lay their  
Egges upon black Serge, Chamlet, Tammie, or such like Stuffe, as in this Treatise is  
shewed.



*The election and use of the seed of the Silke-Worme.*

**T**Here is a great deal of Reason, that we should be curious in the election of our seed; and tis not more Poetick then Philosophick, that of HORACE:

*Est in juvenis est in equis patrum,*

*Virtus nec imbellem feroces*

*Progenerant aquilam columba.*

What can we expect of generosity in that which has a disposition to degenerate before produced: of all the seeds proper for the vivifying this animall, there is none more excellent, as yet arrived to our knowledge, then that of Spaine: this *De Serres* affirmeth, though he seeme to be in a kinde of hesitation, whether that of *Calabria* march not in a higher degree of reputation, as yielding more abundance, and of equall hardnesse with the Cod of Spaine; yet this is certaine in nature and reason, that seed transported into other colder Regions, can no way lay claime to a parity of thriving with that continued in its owne Climate; and I doubt not but if the South of *VIRGINIA*, where the Silke-worme is aboriginally native, were duely inquired after, the Seed of that would have a particular excellency, to which all the European Nations must give the glory, the right hand of preheminance.

But leaving this to the scrutiny which shall be made by time, and experience, we must grant the prime opinion to the Spanish, which however it thrive in France for foure yeares, yet afterwards it degenerates extreemely, so that it must every foure yeares be renew'd, for within that circle it suffers a manifest declension in goodnesse. Comming from Spaine it is of a dark tawny colour, after certaine generations, gray.

To prove whether the seed be dead or not, you must experiment it upon your naile, that which breaks in cracking, casting forth humor and moisture, you may assuredly esteem for good, the other is to be rejected. The smallnesse of the Spanish seed increases the number of Wormes, for which it deserves particular praetion.

No seed of above a yeare old is any further profitable, till you

D

put

litter begins to bee offensive to this curious natured Creature; especially with the increase of the heate, let his diligence increase, that no uncleannesse (at that time more then ordinary maligne) cut him from the benefit of his labours.

The litter must not bee taken away by degrees to the trouble of our curious Creature, but all at once; which may bee effected, if you leave at the end of each Scaffold an empty station to place the adjoining Wormes on, whose left station being made cleane is fitted for the next neighbourhood, and thus may all bee removed and shifted by degrees, and a vacant table at the other end of the scaffold remains to begin againe (as afore) within two, three, or foure dayes at the longest. And thus without carrying far, the Wormes shall bee removed with ease and security, not once laying the finger upon their tender bodies; for giving them fresh leaves at the time of their replacing, the Worme will fasten to the leafe, and the leafe may bee removed with his precious burthen, with no lesse safety then convenience.

It will bee requisite to dispose the tables in such a fashion that they may bee seperately taken from the scaffold like tills out of drawers; for this the easiest and lesse nocent way of cleansing, as preventing the falling of any stench upon the lower tables, and by which they are more suddenly discharged of their filth and ordure, meerely by striking them gently on the floore, which done, let them bee swept and brushed perfectly well; Let the tables on which you put your Wormes after their first sicknesse bee sprinkled with Vinegar or Wine, then rubbed over with sweete Hearbes to delight and encourage them to labour. Some have made tryall, which hath succeeded happily of the smell of Garlick and Onions to refresh them; I dare not absolutely assent to this experiment; but it is cleare as Sunne-shine, that the Worme not onely rejoyces in agreeable odours, but is succoured thereby in his greatest maladies: of which we now intend to discourse.



*The causes of extraordinary maladies in Wormes, and  
their cure.*

**T**He extreames of colds and heates, the too sparing, or too abundant administration of victuals in their severall ages, and a maligne disposition of the leaves are the principle causes of all extraordinary maladies which afflict this Creature. If the inclemency of Cold hath benumbed or diseased this innocent Artiste, the stove or oven formerly mentioned will recover it (the stopping of all windowes, and other admittories of aire cooperating:) To the greater complement of the cure, let the lodging bee perfumed with redolent Gummes, with Wine, strong Vinegar, or *Aqua vitae*: If on the contrary, the torrid violence of heate have wasted the strength of this suddaine and excellent spinner: The fresh aire admitted at the doores and windowes some brave artificiall Fannes or Ventalls to raise this breath, if too little, or at the last the exposing them upon their tables out of their lodgings to enjoy an uncontrouled and liberall communion of the aire, some halfe an houre before Sunne rising are the proper meanes of their recovery. Those which by a wastfull liberality of their keeper in the tendernesse of their age have injured themselves with over feeding, must bee cured by a two dayes abstinence, and for some two succeeding dayes dieted with a moderation. Those who famished by the negligence of their keeper are almost languishing to death, must bee restored by giving them meate in slender proportion, but frequently repeated, by such a dyet regaining their forfeited appetite. Those which by having fed on yellow spotted, or too yong leaves have contracted a fluxe, and from thence a jaundice and spotted colour, accompanied with black bruissings, must upon the first inspection bee immediately removed into separte chambers, that the change of ayre and dyet may labour for their almost desperate cure, and to prevent a contagion, which from thence would universally domineere. But such Wormes which as an accession to this last disease you should behold bathed on the belly by a certain humour flowing in that part of their bodies, are as incurable, good for nothing but to repast your Poultry.

Indeed

from thence is knowne by the same accidentalls, and must have the same applications, onely now they would bee removed into new, cleane, and more spacious places : The third is in all like the two other, though something more dangerous ; heere you must carefully prevent the accession of all cold ayres whatsoever : It may happen that some of these Wormes may grow yellow, which is almost incurable in themselves, and deadly contagious to all the rest; these must bee carefully selected from the rest and ejected. Remove, enlarge & cleanse as before. Eight or ten dayes after appears the 4<sup>th</sup> change or sickness, & now the recovered Wormes being increased to their full growth, must be removed, enlarged, & cleansed, as before.

At appoynted houres morning and evening must this Worme bee fed from their hatching to their first change or sickness; from the second change to the third or fourth, they must bee fed three times the day at the least, taking this for an assured maxime, that after the recovery from their last sickness, The very cloying of them with leaves, even to the satiety of their appetite, accelerates them to the perfection of their taske ; for these curious Vessells will the sooner discharge themselves of their precious inclosed substance, by how much they are the sooner replenished. Nor is there any prodigall improvidence in this ; for it hath beene observed that Wormes have eaten neare as much in eight dayes when more sparingly distributed, as in foure when liberally handed to them ; so that by such wary dispensation they save no leaves, and lose foure dayes in point of time.

But a particular eye of care must bee had to the quality of the leaves you feede with. No goodnesse of a selected tree being capable to secure it selfe against accidentall diseases arising from the unnaturallnesse of seasons, wherein by extreames of drought or moisture, mildewes, heat drops, and other distempers, all the leaves oftentimes becomming yellowish, spotted, or speckled, declare the nature of that food highly unwholesome and pernicious : Such as grow out of the Sunne in the interior umbragious parts of thick trees are almost as dangerous : Nor are the leaves of the second Spring which shoot afresh on trees already disleaved of lesse guilt, through the inequality of their Ages. One banquet of those gives the last repast that your Wormes shall have neede of, a fluxe thence

ari-



arising killing them, and easing you of further trouble; if you account it so to be vigilant over your owne profit.

The most agreeable to all Wormes is to bee fed with leaves of their owne age, and by this the feeble Creature shall meete with tender leaves, then growne strong with leaves, full growne correspondent to both their complexions. The fault of the wet leaves may bee corrected by patience, attending the serener season; but of dry leaves you ought at no time (if you regard your owne profit with a sober providence) to bee unprovided, and the way how to prepare hath bene already delivered in this Treatise.

These precious creatures exact no great expence or laborious care during the first three or foure weekes, being satisfied with little, as most agreeable to the tenderesse and smallnesse of bodies, and are very well entertained with the leaves of the succours or other branches, from whence for the profit of the tree one should necessarily cut them. At the beginning we go to gather leaves with Hankerchiefs, then with little baskets, lastly with sacks & maunds, as growing to a bignesse to require it, and a perfection to discern it.

That the Gatherers of these leaves should handle them with pure and washt hands, wee have already declared absolutely necessary: But the Governour of these chaste and magnificent Creatures must bee Master of an exact purity. The smell of Tobacco is deadly to them: Let his observance forbear it: Let him have a watchfull eye, that none of an offensive smell approach them; all ill breathings upon them, whether contracted by full some foode or nature make this innocently noble Creature expresse her resentment by her owne death, or sicknesse. Let him purifie the ranknesse of his owne breath (when fasting) with good Wine ere he approach them, with the odour whereof the worme is highly cherished. Let the Lodging be swept every day, and preserved so by sprinkling the floure with vinegar, and after wards strawing it with Lavender, Spike, Rosemary, Time, and such like of well comforting Odours. To these we may sometimes adde a perfume composed of Frankincense, Benioin, Storax, and other quickning aromatics burned in the lodging.

Let the Tables be often made cleane and shifted, by often, I meane every third or fourth day at the furthest, at which time the

put them to Hatch, you may preserve them in Boxes thrust amongst woollen cloathes in a Trunke or Chest, and let the Chamber where such Trunkes or Chests are, be now and then aired with a fire, to the intent they being rather warme then cold, may be pradisposed for a hasty production when the season of the yeare shall invite you to put it into practise.

To imbibe or steep the seed of Silke-wormes in the most generous Wine you can procure, is an experiment that hath alwayes answered with a happy successe; for this not onely discriminates betwixt the good and bad, (the good alwaies subsiding, and the other floating) but addes legitimation and strength to the approved ones, making them come forth free and fortified, and causeth them to hatch almost all at one time. After the good are taken out, they must be set to drie in the Sunne, or before the fire, layd upon very clean paper, covered with white linnen, or smooth paper, lest the heat might bring it prejudice.

### *The vivification of the Seed.*

**T**HE Spring being come, and the Mulberries budding, it will be seasonable to put them to hatching, which (all other wayes omitted, as the keeping them in a Boxe, in ones pocket, between a womans Breasts, &c.) sorts best with Reason and convenience, performed thus, *viz.* That the seed removed from its first vessell, shall be committed into a Box lined with Cotton, over which you must put a white paper, which must seporate the seed from the Cotton, then cover the seeds (being not above halfe an inch thick) with a little bed of Tow, over which Tow you are to lay a paper pierced very thick with small holes, much about the bignesse of the tag of a point; over this paper you shall lay some Mulberry leaves. And this is the preparative to hatch them.

To bring them forth, lay your Boxe so prepared between two Pillowes, which moderately warmed with a Pan every two houres, and after the first three and foure dayes visiting the Box at every such warming, to the end to seporate such as you shall see hatched, who will not faile to creep through the Tow, and pierced paper to the Mulberry leaves, to which they will cleave: which to remove, you

you must draw them out of the Boxe by taking hold of the Mulberry leaves with a needle, and removing them and the Wormes adherent into a bigger Boxe or sieve; with paper at the bottomes, distinguish those of a hasty production from those of a more slow, that the worke may arise more equall. These thus brought forth must by gradations be accustomed to indure the coolenesse of the Spring, diminishing dayly something from his accidentall warmnesse: the first foure daies let them in the sieve covered with cleane linnen continue upon the bed, the curtaines closely drawne, then removed into a warme chamber, close from all penetrations, layd upon ranks close together, that they may give and receive mutuall warmth, allowing them a larger proportion of roomes, as they increase in body.

But the most assured way to preserve the Wormes untill their second change in warmth and security from Vermin, dust, or other hostilities of nature, is by a great Presse or Cubbord made with many stages, pargetted or pasted for the agreeableness of the odour with Oxe dung, made of firre, or mats, and to draw out at will seperately, equally distant foure inches, compassed round about with Linnen tackt to the doores, with paper windowes on the sides and foremost doore, to admit or exclude aire after the exigency of the occasion; and heere vacant places being left at first to enlarge them, as they increase in growth may they bee distinguished according to the Dates of their first appearance upon the Mulberry, rejecting all that seed, which is not enlivened before the fifth day, as unprofitable for working by confusion of times, and uselesse by their weaknesse.

Foure times doth this excellent Artist change his skinne, which is the cause of his so many sicknesses. The first sickness arriving within eight dayes from the beginning of his life, is knowne by these symptomes; the head growes bigge and white, and hee hides himselfe under the leaves: To administer any food were needlesse; but that they are not all sick at one instant, so that some must bee given to nourish them which have not arrived to, or past over their sickness, which you shall know by their change of colour and creeping upon fresh leaves.

The second sickness arising within eight dayes, or thereabouts,

Indeed excepting this last inexpugnable malady perfumes and change of chambers are generally conducing to overcome all diseases and to restore a new health and vigour. But this noble Creature is by nature sufficiently priviledged from these diseases, if the unskillfullnesse or negligence of the keeper did not violate this priviledge, and by that violation increase his owne trouble.

Nor is this care of the keeper to bee onely limited to the day, the night too must require a part of his vigilance; Mice and Rats then take advantage, and grieved that any Creature should labour for man without their participation or obstruction devour them by Troopes, and the Cat her selfe enters into a league with these her usuall prey, to prey upon these poore things, whose innocency and excellency makes them the more obnoxious to their cruell avarice. To remedy this, the house must not bee without continuall Lampes, Bells, and other vaine terrours to affright them: The keeper himselfe also, or his Deputy must frequently walke round about his little Army. And lest the Oyle (which occasions divers indispositions, if it fall but in a drop upon these nice Artists) might bee prejudiciall, the Lampes should bee affixed on the wall, and the portable lights with which hee visits his curious charge of Waxe, Tallow, firre tree, or any other of innoxious, but illuminative substance.

These things well observed, within seven or eight dayes at the most, succeeding their fourth and last exuviall sicknesse; The Wormes dispose themselves to pay the expence of their Diet. To make preparation for them, there must bee accommodations of rods necessary for these Wormes to cime up to vomit their silke, and fasten their Webs by. To assemble these Wormes (the terme assigned to this worke) the most proper matters are Rosemary, cutting of Vines shoots, of Chestnuts, Okes, Oliers, Sallowes, Elmes, Ashes, and in generall of all flexible shrubs, not having any disagreeing odour. The feet of these rods evened for the better fixure shall bee joyned at 15 inches distant to the table below, and the tops of them arched together at that above. Which Epitome Amphitheater is Master of as much beauty as those of the CÆSARS in the greatest volume of their lustre and magnificence; the upper part of the Arch must bee plentifully interwoven with sprigs

Spigs of Lavender, Spike, Thyme, and shrubs delectable to the smell. By this intermixture the Wormes shall have ample satisfaction to their restless curiosity, where firmly to fasten their rich matter, having an election of such delectation of Perfumes, & variety of shoots: But these twigs must by no means be green, the moisture extremely offending the Cattell, and not suddenly withering, if the aire be moyst.

The Wormes being removed to these Amphitheatrall Trophies, you may easily discover their gratefull inclination to spinne, by their bignesse of body, brightnesse, and clearenesse of belly and neck, neglect of meat, and irregular wandring through the Troop; and a little after to fulfill these promises they ascend their branches to vomit, or rather spinne out their silky substance. Here you must diminish their Ordinary, dayly, for they will in short time have united themselves to those shoots or twigs, quite forsaking the table. Those Wormes which clime not before the others union to the branches, are of a latter hatching; and to prevent all unreasonable intertextures in generall, to the retarding and perishing of the whole worke, must be assembled two other tables arched as these, that they may worke together at one time.

The knowledge (when these Wormes have perfected their Cods or bottoms) may be obtained by an care that is but the leastwaies curious, these creatures making both a pleasant humming in feeding and continuing it in fashioning their bottoms, give that noise and their compleated worke over both together. That which falls next is the propagation of the seed to be preserved till the next Harvest.

### *The Propagation of the Silke-Worme seed.*

**H**appy creature, which livest onely to doe mankinde service, and dyest when thou hast accomplished it! Miracle of Nature! a Worme shut up in his owne monument, breakes through his silky grave, transformed into a Butterflye! employes ten dayes to erect himselfe a sepulchre, and an equall proportion of time to leave it! disimprisoning himselfe from his owne interment, by perforation of his bottome, he returnes to the view of Mankinde in the figure

of a Butterflye, with wings, as if he had already triumph'd over his Mortality; which done, he and his co-triumphall Females, coupling together perpetuate their species by dissolution of their bodies; and that which compleats the miracle, may arise from the long abstinence of this living three and twenty dayes imprisoned without any sustenance or fruition of that which he takes a particular delight in, day light.

Removing your branches from the Tables, and your silke-balls or bottomes from the Branches 7 dayes after the worke is perfected, the Balls are then to be made election of, for such seed as you will preserve for the year following. *Bonvil*, & *De Serres* do both agree that there should be proportioned 200 Balls for one ounce of seed; the Balls Male and Female (the description of which hereafter.) But whereas *Bonvil* is of opinion that a hundred double or trebble Bottomes which two or three Wormes have spunne and made up in common, will produce so many Wormes as Bottoms; I demand his pardon if I accede rather to the judgement of *De Serres*: for from every double or triple Bottome there comes forth but one Butterflye, though it hath more within: the Reason is, it being not probable that they should be all ripe together, that which is most mature by perforation of the Balls, exposes the other to the assault of the aire, which giving them cold, they dye imperfect.

#### To distinguish the sexes.

**T**HE Male of the worme, when grown great, is knowne from the Female, by a wrinkled head, and a great appearance of eyes; the Female hath the head round without any such appearance. In the Bottomes of Balls the Male is knowne, as having work'd himselfe into a Bottome, long, slender, and by much sharper at one end then the other: the Bottomes of the Female are bigger, softer, round at one end, halfe pointed at the other.

The Sex in those Butterflies is thus distinguished: the Male is lesser of body then the Female, stirring the wings more often and more strongly.

Selecting then two hundred bottomes (male & female included in the number) you must passe a thread through the first and outward

Down,



Downe, called the Sleeve of the Ball ( using a wary hand that you pierce not into the silke, lest the cold getting in you should quite abortive your Wormes ) of which you must make severall connexions composed of an equall number of both Sexes; these (to prevent Rats and Mice) must be hang'd upon some hooke in a chamber of middle temper, but something inclining to coolenesse, yet however not subject to moysture, that the Butterflies may come out with the more facility,

Having pierced through their confinement, though nature her selfe insutes in them disposed applications to finde out their opposite Sexes, it will be necessary to couple such as yet are disjoyned: all which, after you shall perceive them in conjuncture, must bee set either upon Say, Piropus, Tammey, Chamlet, the Backside of old Velvet, (in generall vpon any stufte which has no woolly Downe, wherein the graine may be lost, or where it may get betweene the threads, as in linnen) hang'd upon the wall close by their Balls, or in defect of such stufte, take Walnut-tree leaves one handfull, or more as you shall see occasion, rye them by dozens backside together, hang them at severall nailes or pinnes, and set the coupled Butterflies thereon. Take the Chamlet, or other stuffer, receiving the seed, and rub it gently between your hands, and the seed will come out with great facility.

The principall time of the Butterflies issuing out from the Cod, is in the morning about eight of the Clock: the seed collected must be put into a Boxe very cleane pasted with paper, to exclude all aire or dust, kept in a Chest in a drye temperate place where it may be preserved till the Spring following, avoyding to make any continuall fires in such Chambers, lest the warmth untimely hatch the Wormes, which being brought forth at such a season must perish for want of food.

The Spaniard takes commonly the double and triple Balls for seed, not that he conceites every double Ball should produce two Butterflies, or which is a conceit of more fondnesse, Male and Female; but because the multiplicity of creatures spinning their silk is common, make the worke so confused that they cannot well winde it off, which makes them be put in the ranke of the pierced ones for sleeve; and I must ingenuously acknowledge my selfe to

accede to his opinion; for these double and triple balls are not unapt for this purpose, since they commonly, as *De Serres* observes, come rather from a lustiness and suppleness of the Worme, then any naturall debility: Which sure are so much fitter to bee culled out, that the best balls may bee made into silke, which will easily winde, and the seede of these which is fully as proper for seed; but lesse apt for silke: neither doe I know why they should not bee preferred, since the Spanish seed proceeding from these double and triple Balls carries a particular preheminance above the rest, which if wee shall make use of, the use is the same with others, except that they must bee clipped at the smaller end with the poynt of a paire of scissors, with a regard that you cut not cleane through the bottome, which would by admission of wind destroy the Worme, and this they doe that the Butterflies, if more then one, may finde an easie passage; the best bottomes (if you will preserve them) for Graine, are great, hard, weighty, and of carnation or flesh colour.

The balls preserved for seed being made choice of, the next thing wee are to fall upon is, how to winde off the bottomes designed for silke: Which would bee of much more advantage for purity and plenty of silke, and facility of labour, if they could immediately bee wound off. The silke so freshly taken unwinding without any losse or violence: But this delayed, the Gumme, by which the Worme fastens her threads becoming dry, doth so harden the bottome, that without difficulty and losse, the winding cannot bee accomplished.

This expeditious winding prevents the enclosed Worme of her full metamorphose into a Butterflye, and the bottome from perforation: But then where shall wee finde so many workemen if the designe were generall, as could in seven or eight dayes winde off so many millions of bottomes? Not excluding therefore such as can have that conveniency, the next best course to kill the Butterflies in those bottomes which wee cannot winde off, is by exposing and laying them in the Sunne, the heat of which in its owne worke stifles this Creature: But let this bee two or three dayes successively (not all at one exposure, lest your silke be burned instead of stifling its spinner) two houres before, and two houres af-

ternoone



seemone each day respectively. Let the bottomes, spread upon sheets, be turned often, that the heate may destroy equally, no one excepted from this sharpe insolation; but this must not bee done with a rude hand, which instead of turning them may bruise the Worme, the slimy matter of whose body, being thus bruised, is very prejudiciall both for staining the silke, and gluing it so together, that no Artiste can ever unwind them.

Removing them therefore oftentimes during such sunning with a gentle hand, wrap them thus warmed in sheets, and let them lye in a fresh dry chamber.

But if the Sonne should faile, an Oven of such moderate heate as is usuall after two houres drawing the bread, or heated to such a degree of warmth (laying it over with boards, and the bottomes in sacks upon those boards, there remaining each time an houre and a halfe, repeating it till your experience by opening the most suspected bottomes finde the inclosed Worme consumed) will bee of equall operation.

But that which is the best and least practised course is this: Take your bottomes, and fill such a Furnace or Copper as your Brewers use, halfe full of Water: Within three fingers breadth of this boyling water, lay a lid or planke or board within the Copper, bored through as thick with holes as a Cullender, and so fit to the side of the Furnace, that it by no meanes may sinke into the water: Upon this cover lay a thin Carpet of Darnix, or the like, and upon the Carpet the silke bottomes, which must bee often stirred, with care not to use too much violence. The mouth of the Copper, except when you stir the bottomes, must bee constantly covered, that the heate may smother the Wormes: Your Wormes being dead, lay your bottomes in some roome, where there is aire to dry their moysture. This is an assured (though not vulgar) experiment, and by it your silke becomes as easie in the winding, and as pure in colour and substance, as if it had bene spunne the same moment the Worme had given it perfection.

*To winds off the Silke from the Cod, or Bottomes.*

**T**He winding off the silke from the Cod or bottomes, is thus effected: fill a Caldron full of very faire water, and set it upon a Furnace, heate it to such a degree that the water becomes bubbled,

as though there were small Pearles in the middle, being ready to seeth; then cast in your Cods or bottomes, still stirring them up and downe with broome or other small bushes, if you shall see that the heate is not capable to make your bottomes winde, augment your fire, otherwise abate it.

The bottomes winding the threads will take hold of the broome or brushes; draw those threads so affixed the length of halfe a yard and more out with your fingers, till all the grossefesse of the bottome bee wound off, which cutting off and laying aside, take all the threads of your bottomes united into one and according to the bignesse of thread you intend to make (as whether sowing or stitching) chose the number, not letting the other threads fall into the water againe, which must bee reserved to succcede) which you must runne through an Wyer Ring, appoynted for to raike the threads which (as you shall see in the draught or Picture,) must be fastened upon the fore part of a piece of wood set directly upon a forme before the round or circle, which wee call a Bobin, in the top of which piece in a little space that there is, are fastned two Bobins, distant from one another two fingers; from this wyer ring the thread must bee drawne and crossed upon the Bobins, whose onely use there is to twist the silke through a ring which is fastned in the midst of a stasse; above the Bobins you must continue the draught of your thread; this stasse which moves with the wheele is called a Lincet set a crosse beneath the wheelles, from that Ring you must fasten your thread upon the wheele it selfe, which must bee still turned till the skeyne of silke bee wound up, the Representation see in the next figure.

Observe, when any thread discontinues, his bottome being wound off, to repaire your number from another bottome, this you shall perceive when your full number of bottomes fir nor altogether.

Bee sure that you artificially cut the knots which will bee in your threads, that your silke may bee more pure and uniforme.

Those which cast Gumme Arabick in the water under pretence to make the silke winde more pure and glossy, are but impostours, it being a meere cheate to make the silke weigh the heavier.

Basins, or Caldrons, wherein you put your bottoms to winde. If  
of

of Lead restore the filke more pure then those of Copper, this Metall being subject to a rubiginous quality, from which Lead is wholly exempt. Let the wheelcs be large for the better speeding of the worke, that two skeines may be wound off together. That the fire of the Furnace may be pure, and without smoake, let it be made of Charcoale.

The difficulty of their winding may be mollified by sope, put in the Basin or Caldron; the old Cods or bottoms hardened by time, will have the naturall Gumme which glues their threads dissolved, and the filke come off much more easie.

Those bottomes of filke preserved for seed, and pierced by the Butterflies, may be made of good use, if washing them in water you throwe them into a Caldron ready to boyle, with sope in it, which must be dissolved before the bottomes are cast in: thus let them boyle a quarter of an houre, or thereabouts, which done, take them out, wash them in cleane water and dreye them; being dreyed you must beat them with a round staffe of a good bignesse upon a stone or some block which is better, which will make them become white, and smooth as wooll. The way to spinne them after is this.

They must with the fingers be pul'd one from one another, and opened as wooll uses to be in such preparations, let it then bee put on a Distaffe and spunne as small as you can, or please.

### *Treatise of the Vine.*

**T**Hat the use of the Vine is really intended by nature for VIRGINIA, those infinite flore of Grapes which crowne the forehead of that happy Country are so many speaking testimonies: But what fate hath hitherto diverted our English there inhabiting from the publick undertaking a Commodity of so inestimable benefit, I doe not say for a publick Staple (though it would bee as rich as any other one species of Traffick whatsoever) but even from private Vineyards, where they might sit under their owne Vine, drinke of their owne Grapes, satisfie even the most irregular desire of their voluptuous appetites, and all this *de suo*, without entering  
into

into the Merchants bookes for Wines; peradventure adulterate, without paying the sweat of their browes for the exudation of the Grape, I dare not determinately judge, lest I might bee forced to ascribe it either to a strange nonchacency or sluggishnesse to their owne profit, or which is worse an inveterate contempt of all other wayes of improvement (of what ever returne) in comparison of Fame of Tobacco.

But that they may not bee ignorant of the profit of the Vine, they will bee pleased to know that the Vine requires (once planted) little more labour then the Hoppe. To attend upon foure Acres of Hops is the ordinary underraking of one man in ENGLAND, who besides this, neglects not many other labours. If one man in VIRGINIA bee not sufficient to doe as much as another in ENGLAND, I shall either imagine him to bee lame or idle; nor let them object to me the heat of the Countrey; if the mid-dayes be hotter, the mornings are much colder, and the Labourer in VIRGINIA hath this advantage of being full of bread to satiety, whereas oftentimes the Hireling in ENGLAND having a family to feed, and sometimes no employment, comes to worke with a famish'd body, and courage, lives meerly *de die in diem*, with as little hopes of ever changing the copy of his fortune, as renewing the lease of his Cottage with his Landlord: those are but leane encouragements. In VIRGINIA the meanest servant (if he have any spirit) is still in expectation of improving his condition, and without any presumption may cherish his hopes, which promise him (his time expired) a present happinesse and future possibility of a Fortune equall, if not outgoing his Master, the encouragement being greater, the care lesse, and his provisionall subsistence by much better: why the Laborer in VIRGINIA should not be (I do not say superiour) but equall in strength of body and resolution of minde, to the miserable day-Hireling in ENGLAND, needs an OEDIPUS to unriddle.

By this I hope it granted, that the VIRGINIAN may without any extraordinary efforts of sweat and spirits, labour equally with those of ENGLAND, and upon this accompt I shall assigne a Vignard of four Acres to his tillage, an easie taske; let us compute the profit with the labour, and see what may be the proceed of this portion well husbanded. That

That an acre of Vines in VIRGINIA (when once growne to perfection) will yield an equall increase to a common Acre of Vines in FRANCE, there being as great a difference between the soyles as the Acres, and much greater) will I believe be denyed by none, who pretend to modesty or reason: yet the Acre of Vines in FRANCE, one with another, very few excepted, will yield yearly ten or twelve Muyds of Wine, a measure containing seventy two gallons (a very famous Frenchman LIEBAULT, is my Author:) what the common Acre, or Arpent, is in FRANCE, the same man informes us: an Arpent (the common Arpent or Acre of FRANCE) is 100 Pole in the square, the Pole being longer then ours by eighteen inches; so that one French Acre yields three Tun of Wine and upwards; Our Acre being near upon 50 Pole more, we doubt not of profit equall.

The excellent VIRGINIA will pardon me, if for dilucidation of an argument, I make her pure and unexhausted browes descend to weare a Gyrlond of fertility equall to that laborious and overteeming Mother, the French Kingdome, nay to her common Vineyards; yet let us compute the profit arising from the foute acres, being but one mans labour, we shall finde the product even by that estimate, to be twelve Tunne of Wine, as the recompence of his particular toyle: let us imagine this but at ten pounds the Tunne, and the profits of this single person amounts to 120 pounds *per annum*.

Here they will object the dearenesse or difficulty of Caske; but this objection must be made by those who know not VIRGINIA, where there is such an excellent convenience, and abundance of peculiarly proper Timber, that the Winter will afford the other Labourers together with our Vignerons leisure, to cleave Pipe-staves sufficient for private use of Caske, and to sell to the publique; one man (during that little season) being easily able to make foure thousand.

But our acre being a third part bigger, the soyle  $\frac{2}{3}$  better, why we may not promise to our selves this profit, is an incredulity in ENGLAND, worth a brand of misunderstanding, in SPAIN would deserve the Inquisition.

F

What

(36)  
*What soyle is most proper for the Vine.*

**H**EE which will goe to plant the Vine without the twinne consideration of the quality of the soyle, and the disposition of the aire, hath much affinity with him who goes to Sea without Lead or Compass: the one seldom attaines his Port, nor the other his Harveſt.

The quality of the ground whereon the Vine thrives best, is a fine small Moald, of a substance rather inclining to a gentle lightnesse, then a churlish stubbornesse: they which would not have it to be very fat, are ignorant that while the Vine is yong, the soyle where you plant may be employed to other tillage, and by such expence of its native richnesse, reduced to that which they commend so highly, mediocrity: But if the fatnesse of the ground transmit a rich and never-failing sap into the nascent Vine, making it grow speedily and strongly, if the Vine participate of this fatnesse, which it may be they call grossenesse, as desiring to have it more subtile, there is small question to be made, but that this Wine so imbodyed and fortified by nature, must have extraordinary spirits to preserve it, and that age will have refined all that grossenesse into more pure and noble spirits; that if transported, the Sea will contribute to its melioration: whereas this Wine which they call subtile and delicate spirits, if either preserved long or transported far, will with so much applauded subtilty and delicacy lose all his spirits by age and evaporation.

Scruple therefore at the richnesse of your ground no more then at the ranknesse of your purse; tis in your power to correct either if there were necessity: let it have the qualities of gentle, easie, soone and light, to be fitted, seated (if possible) on the decline of a Hill, not neare to any Marish ground, nor having any springs gliding through it; these Marish grounds you must avoyd as you would doe Levell in a Valley. And the reason is, that the Vine growing in these parts has a crude and unaged blood, quickly soures, and has neither strength to commend or preserve it, and the Frosts in the winter time sinking to his roots, by the moyst passage of his situation, kills it; the Grapes plump and breake, and when as



an additionall judgement to your injudicious station, a Rainy yeare comes to afflict, the Kernels breake out, the true juice of the Grape accompanying it, and though it fall out that the Grape swell againe, yet let not your expectation swell upon it, for instead of good Wine proceeding from thence, you will receive nothing but Viny water.

The gentle, easie, fine, and light ground being the best, does not so wholly arrogate all excellency, as to deny an accession, a neighbourhood of goodnesse to other soyles. The gravelly ground yieldeth Wine of a great delicacy, but a small quantity; besides the infant Plants are in danger of being wash'd away in any extraordinary surfeit of raines, such grounds being not able to give them a deep rooting. The like may be said of sandy ground which notwithstanding in some places especially where it is of a nitrous substance, will not yield the Palme to any ground of whatever richnesse; other grounds may have an enforced richnesse, but because usually all such ensarining compost consists of Dung and Urine, which spoyle the purity of the Vine: If my advice were of any weight, they should never be used for Vintage, till necessity commanded my obedience.

For the disposition of the aire, as particularly whether inclining to a Meridian, or Oblique to the South, South-East, or South-West; if we contemplate the nature of the Vine, that it by instinct, prefers places rather hot then cold, dry then moyst; that it hateth stormes and tempests, it affecteth a gentle breathing winde, or a serene calme; we may presently collect that it is neither to be placed open to the North, North-East, nor (in VIRGINIA especially) to that Nursery of storms, the North-West quarters, nor upon the tops of Hills, where it lyes equally available to all; the deare place then for the Vines embraces, is a Descent, towards, not in a Valley (except never subject to inundations) that being sheltered from the more blustering Domineers in the aire, it lye open to the South, South-West, South-East, or any part of the East and West, within the South quarter, for such a gratefull mansion, and acceptable soyle assigned him, doubt not, but he will returne you a rent which shall satisfie your most unbounded wishes.

But lest the eye in the option of your Vineyard, may impose u-

pon you ; considering that every ground hath some arcane quality which the sight is not able to discover : to make a most certaine experiment , let me propose this way of Examen. Make a pit in the ground (where your intentions are to plant) two foot deep, take a clod of the earth so cast up, powder it, and infuse it in a glasse full of cleare Raine-water, do your best to incorporate it with the water by frequent agitation and mixture : let it repose till the sub-sidid earth have made his perfect residence and settlement in the bottome, and the water recovered her native clearenesse ; taste the water, and arrest your judgement upon this , that such a tast as the water delivers to your pallate , will that earth transmit to your wine : if of an inoffensive or acceptable relish, you may confidently promise your selfe a Wine pure, and consequently ( if the soyle be rich ) very noble, nor is a false taste an ill argument : but if it be a bitter aluminous , or sulphury gust, this place is not fit for your planting, you lose your Wine and your labour.

But VIRGINIA has a more certaine assurance ; God and nature have pointed them a soyle out with their owne finger ; let them therefore fix their eyes upon those places where either the Vine or Mulberry grow conjoyn'd, or seperate, and let them assure themselves of the excellency of the soyle, a diffidence in this being an affront to Nature: yet this caution is to be used that though Valleys are Marshy places . may sometime have them by nature , yet their florescence would be much more excellent and healthfull if removed to such a ground as formerly we have made choise of.

### *To make election of Plants.*

CUriosity about the choise of your Vine Plants will commend your Hasbandry ; let the Vine therefore from whence you take your Plant be of as little Pith as may be, such unpithy Vines being both fruitfull and fortified by nature , bearing a remarkable abundance of substantiall Grapes . and strongly resists the violence of the weather. and of this fertility and firmenesse will your Plant also participate. Let not the Vine you meane to plant from , be above the middle of his strength, or age, and observe about September those which are most laden with Grapes, tallest of eyes in their branches,

branches; and have been least wounded by the unseasonableness of Weather. Take not a Vine growing on a South side to transplant him to a Northerne: and let this downe for a principle in Nature, that all plants removed to a better situation and soyle, answer your largest hopes, by their fruitfulness: but transplanted to a worse, assure your selfe that without an extraordinary cultivation, there cannot be the least probability of its thriving.

Let your Plant (if you may with conveniency) immediately be planted after its separation from its originall; for while it yet retains any vitall vigour, it will the sooner apply it selfe to the desire of life and nourishment. If your necessity will not admit of this festination, wrap it tenderly in its owne earth; and when your leisure will permit you to plant it, let it soake some foure or five dayes in water, and (if possible) running water: this immersing is a very strong preparative to its sudden taking root.

If you apprehend a necessity of keeping him long or transporting him, (imagine it the Cyprian or Calabrian Grape thus to bee transportable into Virginia,) put him into a close Barrell fill'd up with earth; and that no aire may mortifie him, let both ends of the Plant be put into Onions or Garlick, or (which is better) made up with wax, and now and then watered, but not more then to keep the earth from resolving into a dry dust; for too much moisture might (instead of preserving him) make him fructifie, and your Plant would become all root.

Wee have already spoken how we must chuse, but not what we must make choice of: Let your Plants therefore be of those which grow between the highest and lowest, (the lowest having too much of earthy juice, and the highest too little) let them bee round, smooth, and firme, having many eyes, and about one foot and a halfe of old wood cut off with the new.

### *The manner, and way to Plant Vines.*

**H**uman curiosity plungeth us in so many unnecessary toils, that it would almost take a person off from necessary labour: Look into *Columella*, the Countrey Farme, the Dutch Husbandry and all those insoucious Writers, and you shall see them stand upon such

impertinent Prunillos; one while the dependance upon starres be-  
nights a man, another while the ground which should produce  
this or that, must be cast after this forme, or else it will be barren  
in spite of the bounty of the Divine Providence.

Not enumerating therefore all their wayes of Planting. I dare  
lay my life that if the Vine were but set on foot in VIRGINIA,  
the ground prepared for it as they doe their Tobacco there, by a  
right line, holes made instead of their Hillocks, but larger, deeper,  
and at greater distance, that there might something grow betwixt  
them which might be inoffensive to it by nature, and cleare it  
from being choak'd with weedes, or something drawing a con-  
trary juice, (peradventure Onions and Garlick) or something re-  
quiring small nourishment, (as Lupins) which turn'd into the  
earth againe (distance of five foot being left for a Plough, with  
caution not to come too neare the Roots, which must be bared with  
a stowe, the Plough running first the length, and then the traverse  
of those rowes, which therefore must bee lineally straight) would  
both fatten the earth, and cultivate the Vine, all at one moment.  
Yet submitting my selfe to judgements of greater experience then  
my modesty or nature can ever hope for; I shall deliver the seve-  
rall way of planting the Vine, with as much brevity as the matter,  
and my first resolution rather to contract then enlarge, will per-  
mit mee.

The first preparing of the earth to receive the Vine must bee  
done in Spring or Summer, where the ground you digge or cast  
must bee cleansed from all manner of superfluities whatsoever;  
namely, Roots, Weedes, Stones, &c. this digging must bee severall  
times repeated, that the earth by alternate changing its place of top  
and bottom may bee thoroughly tempred, the dry refreshed, and  
the moist qualified: Thus cleansed, cast it into many furrowes  
(the sides whereof the French call Chevaliers or Guides, because it  
should guide you in the planting) the depth of eightene inches or  
more; let the mould cast up above, bee so disposed, that it may an-  
swer to the depth below.

Note that these furrowes in a sandy, stony, or wet ground must  
not bee so hollow as in that which is rough and crabbed. In the  
bottom of the first you may put stones about the bignesse of an  
ordinary

ordinary brick (but round) not bigger, which in the heate of Summer refreshe, in violence of Raine opens a passage to the water, that it dwell not at the Root to rot it.

The best season for planting of Vines is in October, the Moone increasing, the Furrowes must bee made in August, that the exposed earth may have time of digestive preparation.

If your plant have Roots, you must when you plant it cut them off all, except it bee newly gathered, if it bee a slip or cut, which though it bee not so swift of growth the first yeare, yet is of much longer continuance, you must soake it in water, if it bee possible in running water five or six dayes.

Hee which plants the Vine, the ground thus prepared, and having a line with him, that hee may observe a just evennesse and streightnesse, both in the Row, and to the opposite Plant, that so every foure may make a regular quadrangle, must bow his plant, the bigger end forward one foot into the earth of the Ditch, letting first some of the Mould from the sides fall into it; let him tread upon the Mould the better to fixe the plant, and with his hand (the foot still pressing upon that part of the plant which is inearthed) gently raise or bow the top of the plant that it may grow erect: this done, let him cast some more Mould on it, to the thicknesse of six inches, and cut the top of the Plant, so as not to leave above three knots or joynts above the earth. Let him proceede in planting of the rest, observing the prescribed order: some set two plants together in this order, that if one shou'd faile, the other might recompence the default.

If you will have your Vine to grow without stakes or props, cut it so, that you let it not increase above two or three joynts in the yeare, which will make it to stand firme against all stormes, if but naturally violent.

It will bee extreme ill husbandry to plant Vines of different kindes or qualities together, such diversity there is in their season of ripenesse; some preventing your expectation by the suddaintnesse of their maturity, others deceiving it by their late ripenesse. Wee have spoken of the planting, let us now handle the culture and dresse of it, that his fertility may in some measure requite the labour of his implanting.

*The manner of dressing the Vine.*

**M**Id May will bee a season which will best informe you, whether your Plants have taken so good root, that it expresse a verdure and germination in his Branches; when therefore the shoot is able to indure dressing, let it bee cut within two or three knots of the old Wood, and if any other slips spring from the Root, cut them away ( with care however that it wound not the Root, or the maine stock, which are wonderfully offended by the too neare approach of any toole that is edged ) that the whole strength of the Vine may unite into one common stock or pillar, to support and convey the sap into the permitted branches, of which you may not let any flourish the first yeare of its growth. It is observed, that to cut the Vine in the decrease of the Moone, makes the fleshy part of the Grape of a more substantiall grossenesse and seeding, and is a peculiar remedy for those Vines which are given to bee over-ranke with wood: Let it bee the care of the Vigner on to remooove all obstructions of Weedes which uninvited participate of the Vines nourishment: the surest way to kill which, is, to turne them in towards the earth, which is not onely a destruction to the thiefe of its moysture, but a restitution of the robbery; for the Weedes so inverted enrich the ground to the great encouragement of the Vine, and the no lesse profit of the Vine dressers. Let your knife with which you cut your Vine bee very sharpe, and let your Vine bee cut sloping at one cut, if possible, and not far from the old Wood, that the growth of the Vine may the more speedily cover the wound.

The Vines must bee dressed or husbanded three times the yeare, the first culture of it must bee in March, at which time you are to digge about the Root three quarters of a foot deep, or thereabouts: The next season must be in April, wherein you must digge about the Roote, within a third of the former depth, then you must also prune it by cutting all the branches, and leaving some three knobs or joynts of the new wood in your Vine of the first yeares growth, and cutting off all dead or superfluous branches of the old, whose permitted branches must also bee pruned, lest they should



should spend that aliment decreed for the Grape in elongation of the branches, all succors also must bee plucked away. In August the like course is to bee used in the Wine of the precedent Autumne leaving two or three joynts or knobs of new wood: againe the old ones may bee onely digged, if at that time, and at all other times you perceive any dead or wounded branches, you must cut them off something further then the mortification or hurt extends; and in all prunings let no Vine bee cut in the knob or joynt, but in the space betwixt; there following usually nothing but absolute and irremediable decaying, where they are cut in the articular knitting. If in April's dressing, the Vine have no branched but onely bud-ded, which is most usuall (but more especially in March) you must nip the bud off with your fingers, to the end that the juice which would ascend to hasten the germination, may bee stopped to strengthen and engrosse the store.

The third yeare the Vine will beare you Grapes in these Countries, but I am confident that in VIRGINIA it wou'd beare at the second; and this my confidence is grounded upon the hasty perfection all things receive in VIRGINIA, by much preceding all our neighbour Countries. The Peachtree arrives not to that virility of growth in eight yeares, in these regions, which it obtains at foure there. The like is verified in Apples and Cherries: and if it be questioned how such men which peradventure being in a necessity, are not able to attend two yeares for a returne, shall in the meane while subsist: it is easily answered, that the intervalls betwixt the dressings of the Vines will afford space enough for a reasonable Crop of Tobacco; and there is much more labour in looking to 5000. Plants of Tobacco then the like number of Vines, especially if the interspaces be ploughed, and sowed with Turnips or Lupines, which both adde to the fatnesse and unwinding of the ground, and choake up all weeds and grasse which might afflict it. Contrariwise, Tobacco will admit nothing in the Vacant spaces, and must be perpetually weeded. Further, though other Vine-Masters prescribe the digging about the roots of their Plant in August; which is the busie season of inning the Tobacco, yet I am driven by divers reasons to wish such culture omitted at that time of the yeare, since it layes the root by so much the nearer

to a violently torrid Sun which is so far from cherishing of it, that it burnes it; by which I meanes his Crop of Tobacco need not at all to be neglected: but these Vines steale into such perfection by that time they are arrived at foure yeares growth, that twenty thousand Plants of Tobacco, though sold at 6 pence *per* pound, (a great rate in VIRGINIA) will not returne you a like profit, which though it may be something sparingly believed, yet may be made apparent. For admitting our Vines by that time of 4 foot high, by their so often cutting of the shoots, nourished unto a stock strong enough to support it self; of Branches, by the like tillage, equall in vigour, yield but a gallon of Wine *per* piece, yet here is 20 Tun of Wine yearely, for 30 yeares together, (so long will the Vine thus husbanded, last fruitfull, and vigorous, if Planted with the slip rather then the Root) without any interruption but that which sets bounds and limit to all things, the divine providence in his dispensation of seasons.

*Of the Diseases of Vines, and their Remedy.*

**B**Efore we can justifie our expectations of a good Harvest, we must providently foresee and prevent (as much as in us lies) such casualties as may make our hope abortive; let us therefore cast our eye upon such Diseases which may make the Vine unfruitfull, or after the fruit produced, destroy its desired fertility.

To prevent the Frost from benumbing, or absolutely destroying your Vines, let there be layd up in divers places heaps of drye dung, with an intermixture of chaff, and straw, and when you conjecture the approach of the Frost, set this combustible stuffe on fire, and the smoke arising from thence will so temper and qualifie the aire that your Vine for that season will be secured from Damage: yet if (before you have applyed this preventive remedy) the fruit of your Vine be destroyed, cut it off very short, and the strength continuing in the remainder will so fortifie it, that the next yeare it will recompence you double in the quantity of your fruit; for what it hath been rob'd of by the present.

To provide against the blasting of your Vine: When you perceive it upon the point of budding, cut it as late as may be; for this

this late cutting it will make your Vine something later, and by consequence, blossom or flower as fast time as the Sunne is ascended to his greatest degree of heat and fervor.

To breake off such Mists and Fogs as are already gathered in the aire, and give probable menaces to fall upon your Vines, you must apply your selfe to this remedy: let a smoake round about your Vineyard be made with Goats dung, kindled and set on fire. Such Fogges as have outstripped your care and already fallen upon, and endamaged your Vines, must have the malignity of their vapors taken off, or at least asswaged by irrigation of Vines, with the water in which the leaves or roots of wilde Cucumbers, or Coloquintida have been layd some time to infuse: this must be applied immediatly after the mists. Some are of an opinion that Bay-trees (which by the way are dangerously sociable to the Vine) planted round, but not too near the Vineyard, wil privilegedge the Vine from this distaster, by attracting all the ill disposed mallice of those Fogs unto it selfe. This ill experimented will hardly be worthy believe.

It is an opinion no way contradicted, that fertility is restored to a Vine become barren, if humane Urine kept a long while stale, to make it the more salt and ranky, be dropt by degrees upon the Vine stock, which must immediatly after be laid about with dung and earth mixt together: the season for the application of this Cure must be in Autumne. Another way I should conceive to be altogether as effectuell, namely, to leave it nothing but the stock, bare the roots, and lay there either Acornes, Chestnuts, or rotted straw; and if the bignesse of the root will permit it, to cleave it a little way, and to thrust into the fissure a piece of Vine wood, cut small for the purpose; it being certaine that trees themselves sometimes groane under the sickness of being hide-bound: Vines are perceived to want moisture, when their leaves turne of a deep red colour: this Disease is cured by watering them with Sea-water, or stale Urine.

#### *The Bleeding of the Vine.*

**T**HE Vine sometimes is troubled with an extraordinary Efflux, or emanation of its juice; some call it the weeping, others the bleeding of the Vine, and this Disease is commonly so violent,

that if not stopped it leaves the Vine without blood and life. The remedy is to breake the bark of the Vine upon the body thereof, and to anoynt the wound with oyle boyled to the halfe, or else with the Lees of Wine not salted; this done, let it bee watered with Vinegar, which by how much the stronger it may bee, is so much more effectuall.

### *The scattering Vine.*

**T**HE Vine sometimes is oppressed with an unretentive scattering disease, as unable to maintaine the fruit shee hath produced, which shee therefore discharges, and lets fall from her; the symptoms by which you are to judge of this disease, are an unnatural palenesse and drynesse of the leaves, the branch it selfe languid, broad, and of a more pithy softnesse then usuall. The cure to this, is to rub Ashes beaten and mixed with strong Vinegar about the foot of the Vine, and to water all that is round about the stock: *Quare*, whether fissures in the Barke made with a sharpe knife some sixe inches long may not bee an additionall Receipt to the former prescription. The tree peradventure having contracted this malady by too close imprisonment in the Bark, being in a murther hide bound; how ever the foregoing Medicine cannot in this case but sort to better effect, if the tree and bark jointly be rubbed over then the bark onely, unless this Medicine could give a relaxation to the bark, which I have no faith in.

### *The Vine too full of branches, or luxuriant.*

**T**HE Vine expending it selfe too wastfully in overmany branches, must bee cut very short. If this overcome not that luxury, the usuall remedy is, let it bee bared at the Roots, and River gravell layd round about the stock, together with a few Ashes or else some stones. The reason I apprehend not, except it bee to check its fertility, which I conceive may more prosperously bee effected, if onely the branches being cut, and the stock low, you suffer that exuberancy to waste it selfe in adding more copulency to the stock, which will of it selfe bee a sufficient spender to restrain.

straine and confine the former liberality of juice.

### *The withering Vine.*

**I**F the Grapes languish and dry away as they hang upon the Vine, before you apply a remedy you must cast away all that are already affected with this contagion; then water the rest with Vinegar, in which Ashes of Vine branches have beene infused. The most assured remedy is to water the Root of the Vine, from whence the disease cometh with the stalest Urine; the former Remedy being something irregular, as if it were easily feisible to remove a malady by application to the effects, without considering the efficient.

### *The rotting of Grapes upon the Vine.*

**T**Here are of Vines whose fruit putrisie upon the Branches before they come to maturity: this disease is remedied by laying old Ashes to their Root, or Gravel, or Barley meale mixed with the seed of Porcellane about the body; *Quære*, whether this disease proceed from a Plethorick ranknesse or emaciate debility: if from ranknesse all application of ashes hurt it: the symptoms of ranknesse are, when a tree lavishes his moysture into too many branches, which may make him neglect to feede the fruit, as unable to maintaine two spenders; and I am confident the naturall remedy for this is to bare him (as much as possible) of wood, that it may divert the nourishment to the Grape; if from debility, which you shall perceive by a flaccid palenes in the leaves, the same remedy which wee prescribed to the withering Vine, viz. to water the Root with Urine of a long stalenesse, will bee the most proper.

### *The biting of the Cow or Oxe.*

**I**n deede the best way to prevent this disease, is to have your ground either well paled or quicksetted, or both: But that the biting or breatching of Kine may not endamage the Vine (which hardly recovers after such wound or infection) water the foot stock

of your Vine with such water as the Tanners have used in dressing and mollifying their raw Hides, and you may promise your selfe to bee secured from them, they as mortally hating such fents, as the Vine abhors their bite or breathing.

### *Against Caterpillars.*

**T**He opinion is, that Caterpillars and other noysome, though little Vermine, will not molest the bud or leafe of the Vine, if the hooke or hedgebill wherewith you prune and cut off the superfluous branches of the Vine be anoynted over with the blood of a Male Goat, or the fat of an Asse, or of a Beare; or with the Oyle wherein Caterpillars or brayed Garlick have beene boyled, or if you anoynt and rub them with the purse or sheath of a Badgers stones, after your hooke has beene ground: These are curious rather then apparently approved Medicines, and for their reason I must demurre to give it, *Quare*, whether the Oyle wherein Caterpillars or brayed Garlick have beene boyled well, rubbed about the stock of the Tree, may not make those Reptilia abhor the ascending, or whether the juce of Rew so applyed, have not the like verue.

The driving Locusts from the Vine is done by fumigation, as either firing of old Oxe dung, *Galbanum*, old shoe soles, Hartshorne, womens haire; but that which they propose last, I conceive to bee the best, namely, to plant Pionie neare them.

### *To prevent Piswires.*

**P**iswires, who divers times fret in sander the wood of the Vine, even to the very marrow, will not at all approach it, if you anoynt and rub the stock with the dung of Kine, or greafe of Asles.

The Bay-tree, Hasell-tree, and Coleworts beare a particular enmity to the Vine, and expresse it by effects when planted neare; this I cannot helieve to bee out of any Magicall Antipathy, but rather that these (as the Plum-tree) are great and strong succors of Juice, and happily drawing of the same, by which the Vine is  
more



more particularly nourished, of which being cheated, it is no wonder if the expresse a decidency.

*The manner of the Vintage.*

**A**ND now wee are come to that which is most acceptable to mankind, the successfull fruit of his labours reaped in his Vintage, which wee must not of a naturall greedinesse precipitate, till the Grapes bee of such a kindly ripenesse of age, that to let them continue on the Vine longer were to lose them; this ripenesse is visibly understood by a mutation in the Branch and Grape; in the Branch you shall perceive a manifest mutation by an incline to rednesse in the Grape; if it bee white it alters towards a yellow, if red towards a black colour; nor are the taste and touch lesse discerners of such full maturity; for if they bee sweete in taste, and the liquor of a glutinous substance, cleaving to the finger; wee may conclude that both they, and the time to gather them are of full ripenesse. There are also other signes, if the kernell expressed out of the grape betweene your fingers, come out cleane, and altogether seperate from the flesh or pulpe of the Vine, if after such expression (gently performed) the Grape diminish nothing from his bignes, &c. These all, or the most of them concurring, prepare for your Harvest.

Yet in VIRGINIA, where the Harvest is more abundant then the Labourers, to prevent a glut of worke flowing upon few hands, and consequently not possible to bee thoroughly equalled: It will not bee amisse to use both anticipation by accelerating nature with artificiall means in some, and retardation by arresting the speede of growth in others, to accelerate Ashes layd to the foot of Vines, and those Vines planted to something more advantage of an amorous Sunne, will make them antecede the others, at the least by their advance of foureteene dayes; the other in their naturall course following that space after, and the others more particularly retarded (which may bee easily effected by the pruning of them later then the rest just upon their preparative to bud; which arresting the sap makes it afterwards (though later) returne with a greater abundance:) staying foureteene dayes later, there will

will bee completely fixe weales, and gathering in of your Vintage. And by this meanes you keep your Vineyard tilled or manured every third yeare all over, which will have no ingratefull accession to its duration in fertility and strength: Those of the most forward ripenesse this year, being retarded the next, and those of the naturall maturation husbanded in that manner, the next Winter.

The fittest season to gather them must bee in a serene unclouded sky (the Grapes having any Raine or Dew upon them when gathered, losing much of their perfect strength and goodnesse,) for the Wine made of Grapes thoroughly dryed in their collection, hath a greater priviledge of force and continuance: But before this collection bee attempted, all things fitting to receive your Vintage must bee prepared in cleanness and order, viz. Baskets, Casks, and Fatts strongly hooped, Tubs great and small, Stands, Presses, &c. and all scoured, washed, and furnished with their necessary instruments and conveniencies.

The Grape gatherer must distinguish and seporate the leane, green, sower, withered, or rotten Grapes, from those which are of absolute ripenesse and soundnesse. That the Wine by such an uncomely confusion or mixture may not bee lesse pure, sprightly, and healthfull, then it was intended by nature, such inconsiderate Gatherers are sayd to bee of the Divells sending, to spoyle Gods provisions. Nor should they confusedly mixe good with good, if of different quality, as to mingle that which is strong and rich, with which is small, but delicate. They prescribe that the Grapes so gathered should bee left in the ground at least a day or two, and that uncovered, provided it raine not, by which meanes, say they, they will become much better, since the Sunne, dew, and earth, by this exposure taking from them what ever they have of bad unprofitable moysture, refine and purifie them. A courte as far as my span of reason can extend, so far from this promise of refining and purifying, that it absolutely tends to their corruption. Have they wanted the Sunne and Dew when upon the stalke? Could not the same Sunne and Dew which enripened them, refine and purifie them there? As for the earths meliorating them, if melioration bee understood by putrifaction, 'tis easily granted; Apples that  
lye

lye on the ground are so meliorated, that is to say rotted, and shall the Grape a more delicate and tender fruit avoyd it? This is by way of digression, but it is necessary; for without this caution a modest man which reides with an obedient judgement any booke of these men, taking the Authour for an *αὐτοῖς*, subscribes to it, observes the prescription, and gaine a doctrine of future providence, by the losse of his present Vintage.

But after the Grapes have remained a day or two in the house, it will bee time to put them into the Fatt to bee trodden out equally. Those which tread the Grapes should before they go into the Fatt have their feete and legges washed extremely, and themselves covered with a shirt as well as drawers, that their sweat may not mixe with the Wine, and that nothing in the act of eating fall from their mouths into it: they must bee punctuall in abstaining from eating of the Grapes, while they are at this their labour.

Surely this way of treading the Grape is derived from some abstentious man, who devised this stratagem under a pretence of expediting the worke; but indeede to deter men from drinking that which is so uncomely prepared. I know they will alledge that by treading it flowes more naturally, and withall more pure forth, then that which is pressed; but withall give mee leave, say that the very Presse it selfe it is bee not too violently and greedily laboured, makes it glide forth altogether as naturally and purely, and which is more with greater equality; for in the Presse, all the Grapes feele the impulsion at once, and if the Owner bee not too covetous to bring the drosse and grosse parts of the Grape to a second squeezing, and mixing with the first; without dispute the Wine so expresse is altogether as good and strong as that which is trodden, but I am certaine much more clearly.

The Wine (however) being expresse must be poured, drosse, Huskes, and all, into a Fat to worke or boyle in, which it must doe for the space of foure and twenty houres at the least, if you will have it fine, delicate, and subtile; but if you desire to have it strong and noble, let it worke in the Fat foure or five dayes, with a Covering over it, that so the vapour thereof may not exhale, or his force waste it selfe.

The Fat, or Tub prepared, must have immediately before his re-

H

ception

ception of the Wine, a little bunch of Vine branches laid before the Tap-hole, which (that it may not heave up with the Wine) must be kept downe with a cleane stone or Brick, or which is better and less offensive, a ring of Lead wound about it: this when you draw the Wine will hinder the Huskes or Stripes from coming out with the liquor. Your Fat must not be full by halfe a foot or more, that the Wine may have the more space to boyle or worke in.

Your Wine in vessel'd must not be filled up to the Bung, nor the Bung closed, that the Wine may have the greater liberty of despumation, and rejecting whatever it findes reluctant to its owne nature.

Every day you must fill up what is expurged, and something more, till you finde the Wine thoroughly appeased, and discharged of whatever might be obstructive to its generosity: nor must this Caske be in the Cellar, but either in the open aire, or in some Barne where it has a liberrall respiration; besides the defects in Caske cannot be so easily discovered when the Wine is in the Cellar as in open places. When it is so thoroughly settled, that it hath given over all appetite or signe of boyling, you may have it committed to your Cellar, which should stand upon the North here, (in VIRGINIA upon the North-west as the coolest and driest Angle) paved with gravell or drye earth, which is lesse subject to moylsture or exudations then Brick, or especially stone, absolutely remote and unimpeded by any ill odours of Stables, Sinkes, Bathes, Marshy places, &c. neither should it have any thing shut up or kept in it, which have any sent of acrimony or harshnesse, as Cheese, Garlick, Onions, Oyles, (Trane, Neatsfoot, Linseed, and others, not the Salade-Oyle) it being observed, that nothing is more open or obnoxious to contagion then Wine, especially when new.

Your Vessells must be so rank'd in order that they touch not one another, by this meanes to leave a liberty of sight to foresee a misfortune, or prevent it when happened. They must be so close stopped in the Bung with Clay, that not the least irreption of aire may be capable to taint it, to which it is very subject.

To cause new wine to bee quickly purged, put (after this proportion

(65)  
portion in the rists) to 15 quarts of new Wine, then place of strong Vinegar, and within the space of three dayes it will be fined.

To preserve Must or new Wine all the yeare, take that Vine which voluntary distilleth from the Grape, before it suffer the presse, and put it into a Vessell pitch'd within and without the same day: let the Vessell be halfe full, and very well stop'd with plaster above; and thus the new Wine will continue a long while in his sweetnesse. But to adde to this experiment and the continuance of the Wine, you must hinder it from working, which you may well doe, if you put the Vessell into some Well or River, there to remaine thirty dayes; for not having boyled it will continue alwayes sweet, and is preserved by the heat of the Pitch. Others prefer the burying of this Vessell in moist gravell: and (which in my opinion is the best) others cover the Vessell first with the drosse of the Wine presse; then heap upon it moyst gravell; by which meanes, something interposing betwixt the extraordinary moysture and cold of the gravell, which might have some influx upon the Wine, your Must preserved in an excellent meane of temper.

*To know if there be any water in the Wine.*

**T**HE Malice of servants sometimes swallowing downe their Masters Wine, and fearing to be discovered if the quantity be diminished, or the baseness of the Dealer to impose upon the Merchant, makes both of them adulterate it with water, which not being discernable to the eye, may be made familiar to your knowledge by this experiment: Take a withered Rush, immerge it in the Wine; after a small space draw it out againe: if the Wine have been thus bastarded, you shall perceive the water cleaving to it. Otherwise, take raw and wilde Peares, cutting, and cleansing them in the midst, or in lieu of them, Mulberries, cast them into the Wine: if they float, the Wine is neat and cleare from such sophistication; if they subside there is water in it. Some doe anoint a Reed, a peece of wood, or paper, hay, or some other litle bundle of herbs, or straws with Oyle; which if they drye; put into the

172  
Wine, and draw them out; if the Wine have been embased  
with water, drops thereof will gather unto the Oyle. Another  
sure tryall is to cast unslaked Lime into the Wine; if there be any  
adulteration, the Lime dissolves, if the Wine be undeveloped,  
the Lime collects thereby a harder cementation. Others take of  
the Wine, and inject it into a Frying-pan wherein there is boyling  
Oyle, and the Wine (if depured) declares it with a loud noise, and  
frequent Bubbles. To make another tryall, lay an Egge into the  
Wine, the Egge descending, manifests the abuse, not descending,  
the Wine is as the Grape bled it.

*To separate Wine from Water.*

**B**UT as the miserable man in the pit desired his friend not to  
Question how he fell in, but to advise how he should get out:  
We will not be satisfied that there is water in the Wine, but how  
it may be separated from it; which if we may believe the deliverers  
of it, who have published it to the World in their names, you  
must put into the Vessell of Wine melted Allum, then stop the  
mouth of the Vessell with a sponge drenched in Oyle, which done,  
turne the mouth of the Vessell so stopped, downwards, and the  
water onely will come forth, leaving the Wine pure: the reason of  
this I cannot give, and have onely read (not seen) the experi-  
ment.

*The way to correct over much waterishnesse in Wine.*

**I**F gluts of raine have made the yeare so unseasonable, that the  
Grape hath contracted a watry quality to the diminution of his  
Winy goodnesse: or if it fall out that after the time of gathering  
them, there fall such store of raine, that the Grapes instead of  
Dewes are too much wetted; (such is the profit of exposing the gar-  
thered clusters into the open aire for 48 houres) the remedy is to  
tread them quickly, and finding the Wine weake, by tasting it af-  
ter it hath been put into the Vessell, and begun to boyle there,  
it must presently be changed, and drawne out into another Vessell,  
for so the watry parts that are in it will stay behinde in the bot-  
tome,



come, yet the Wine standing still charged, will be totally corrected, if you put to every fifteen quarts of Wine, a pint and a halfe of Salt.

### *To make Wine of an acceptable odour.*

**I**F you will perfume your Wine with a gratefull odour, by which the braine may be strengthened, as well as the heart exalted: take a few Myrtle-berries dry, bray them, and put them into a little Barrell of Wine; let it so rest, close stopped, ten dayes afterwards use it at pleasure. The like effect will follow, if you take the blossoms of the Grapes (these especially which growe upon the shrubby Vines) when the Vine is in flower, and cast them into the Wine, the brimmes of the Wine-vessell being rub'd over with the leaves of the Pine and Cypress tree, and this will give it a fragrancy delightfully odorate: Or which is of equall facility, you may hang an Orange, or Pomecitron, (being of a convenient greatness) and prick it full of Cloaves, and that in such sort as it may not touch the Wine, shut up in all these Applications, the Vessell very close. If this like you not, take the simples of such matter as you would have your Wine to smell of, infuse them in *Aqua vite*, the infusion may be repeated by percolation of the old herbs, and addition of new, till it have gotten a full and absolute perfection of those odours you desire, then poure the *Aqua vite* (the herbs strained from it) into the Vessell of Wine.

### *To make Cure.*

**Y**OU may make the boyled Wine called Cure, if you boyle new Wine that is good, lovely, and very sweet untill the third part thereof bee consumed; when it is growne cold put it into a Vessell and use it. But to make this Cure, that it may continue all the yeare, gather your Grapes whole, and let them lye spread three dayes in the Sunne, on the fourth about noone tread them. The liquor or sweet Wine which shal runne out into the Fatt before the drossy substance come under the presse, must bee boyled one third as before; then to every nineteene quarts of Wine adde

an ounce of Trees or Corne flag well brayed, straine this Wine without the Lees, which being done, it will continue sweet, firme, and wholesome.

*To cause troubled Wines to settle.*

**T**O cause troubled Wines, and such as are full of Lees to settle, poure into thirty quarts of Wine, halfe a pint of the Lees of Oyle boyled, till the third part bee wasted, and the Wines will immediately retaine to their former settlement. Otherwise, which is better and more easie, cast into the Wine-Vessell the whites of six or seven Egges, and stirre them together very well with a stick.

*To know whether the Wine will keepe long.*

**T**HE knowledge whether the Wine will continue long or not in a good condition, is thus made apparent: When your Wine is tunned up, you must within some time after change it into another Vessell, leaving the Lees behinde in the first; which you must diligently stop from taking any vent whatsoever; after some time you may looke into the Lees with carefull animadversion, whether they change or contract any ill sent or not; or whether they breed any Griats, or other such Creatures; if you espye none of these mutations or corrupt generation, repose your selfe with all confidence that your Wine will continue pure to the longest: But if these Symptomes discovered, will bee so many admonitions to dispose of that Wine with the soonest, which is already by nature inclined to turne bad and corrupt; others take a pipe of Elder, or such other wood as may bee hollowed through, with which they receive the sent of the Lees, and by them informe themselves how the Wine is conditioned.

A good pallate will divine of Wines by the taste, namely that if the new Wine bee sharpe and quick, they repose confidence in its goodnesse and continuance; but if flat and heavy, then they expect nothing but the contrary to good qualities: againe, if the new Wine (when put into the Vessells) be flat and giewy, the sign is prosperous; but if contrariwise, it be thicke and weak, it is an argument

argument that it will easily be turned,

*To keepe Wine at all times.*

**T**O effect this, you may cast Roch-Allum (very finely powdred) into the Vessell which you meane to put your new Wine in, or bay Salt very finely powdred: or pibble stones, and little flints taken out of some Brooke, or which will retaine the spirits of the Wine from evaporating; more certainly Salade Oyle, so much as will cover the superficies of the Wine.

*To make that Wine shal not Flowre.*

**V**ine will have no Flower, if you put into it the Flowers of the Vine, gathered, and dried, or the meale of Fetiches, changing the Wine into another Vessell, when the meale or Flowers are settled downe to the bottome.

*To prepare Physicall Wines.*

**N**either is this digression impertinent; Physicians are not so frequent in VIRGINIA, as in PADUA, or LONDON, and were there more, yet the vast space of ground, those people take up in their scattred dwellings, makes the addreses to them very difficult: that therefore they may (in absence of the Physitian) have some common remedies for common diseases; I have thought fit to give them this account of Medicinall Wines out of LIBAULT, all of them of excellent Virtues, and easie preparations; the first shall be

*To make Wines of Wormewood.*

**T**O which effect, take of Sea-Wormewood, or in default of that, common Wormewood, especially that which hath the small stalke, and short leaves, eight Drammes; Stamp them, and binde them in a cloath which is not woven too thick, cast it into the Vessell, pouring new Wine upon it, making this accompt, that to every

every three pints of Wine there must bee eight drams of Wormewood; continue this proportion in the filling of your Vessell, which you must leave with the vent open, that the Wine fall not a new to boyling. The use of this Wine is good for the paine of the stomack and liver, and to kill Wormes.

*To make Wine of Horehound.*

**T**His Wine being very soveraigne for the Cough, must bee made in the time of Vintage, to which purpose you must gather of the Crops and tender stalkes of Horehound, of that especially which growes in leane untilled places; afterwards cause them to bee dried in the Sunne, make them up into bundles, tying them with a Rush, sinke them in the vessell to 68 quarts of new Wine; you must put eight pound of Horehound to boyle therewith, after the Wine is settled the Horehound must bee taken out, and the Wine stopt very diligently.

The Wine of Anise and Dill very good against the difficulty of the Urine: The Wine of Peares against the flux of the belly; the Wine of Bayes against the ach and wringings of the belly; the Wine of *Alarum*, *Bacchar* against the Jaundise, Dropsies, and Tertian Agues; the Wine of Sage against pines and weakenesse of the sinewes, are all made as the Wine of Wormewood.

*To make Wine of Betony.*

**T**ake Betony, the Leaves and Seedes about one pound, put it into twenty quarts of Wine, and at the expiration of the seven moneth, change the Wine into new Vessells. This most excellent Wine aswageth the paine of the Reines, breaketh the stone, and healeth the Jaundise.

*To make the Wine of Hyssop.*

**T**ake the leaves of Hyssop well stamped, rye them fast in a very fine cloth, and cast about one pound of them into twenty quarts of new Wine, this Wine is peculiarly excellent against the diseases

diseases of the lungs, an old Cough, and shortness of breath.

Wine of Pomegranates, made of Pomegranates that are scarce ripe, being thoroughly bruized, and put into a vessell of thick red Wine, serveth of singular use against the fluxe of the belly : to which end also serve the Wines made of Services, Malbenties, and Quinces.

The Ancients had a very high opinion of Treacle Wine, from consideration of its extraordinary vertue in asswaging and healing the bitings of Serpents, and other venomous Beasts. Not had the Vine solely this vertue in its Grape, but in the leaves also stamped and applyed unto the grieved part. This Vine is thus prepared : cleave three or foure fingers breadth of the Plant you intend to set, take out the pith, and replenish the vacant part with Treacle, afterwards set the cloven part covered and wrapt in paper. Thus Vines may bee made foporiferous, if you prepare them in the same manner with Opium, as before with Treacle, likewise by preparing it with some soluble purges. By this meanes you may have Wine to tast like the Greeke Calabrian Frontignae, or any other noble for its excellency ; if the Lees purified and preserved bee inserted into the pith of the branch, Aromatick, if to these Lees you adde compounds of Cynamon, Cassia, Cloves, or what ever shall bee most agreeable to the nostrill and palarce.

*To remedy Wines inclining to corrupt, and first of Wine beginning to soure :*

**I**F you perceive Wine beginning to waxe soure, put into the bottom of your Vessell a pot of water well stoppt, close the Vessell, yet so as at a vent hole to receive and transmit a little aire : the third day draw out the pot, and you shall see a noble experiment of attraction, for the water will be sinking, and the Wine found to be near.

*At what time, and by what accidents Wine is most apt to corrupt, with its remedy.*

**T**HE season when Wines are subject to turne or bee troubled, is about the Summer solstice, viz. the 11. of June, at the same

time that the Vine emits her blossom; not then alone, but sometimes about the Dog-dayes, by reason of the variety of heates, generally the Wine is in some sort of commotion, when a constant South wind disturbs the aire, whether it bee in Winter or Summer, in great and continued raines also, and winds in Earthquakes or mighty Thunders. To keepe them from turning is by the injection of pan salt, when they boyle or worke, or else of the seed of smallage, Barley-bran, the leaves of Bay-trees, or of Fennell seed brayed with the Ashes of the Vine brayed. The like effect have Almonds cast into the wine, or the Ashes of the Oak, or the Meale of the white Fenne both defends the wine from turning, and keepeth it in his soundnesse. Alum broken in pieces the same, the worst application is of Brimstone, Lime, Plaster, &c. To recover the wine when turned, must bee effected either by changing the Vessell, by beaten pepper, or take whites of Egges, beate them very well, and take the froth from thence arising of them, poure them into the Vessell, which you must immediately roule after its infusion: Or else take twelve Kernells of old Walnuts (the Virginian Walnut I conceive exceeding proper,) roast them under the Ashes, and whilst they are yet hot, draw a thread through them, hang them in the wine, where they must bee till the wine (which will not fail) recover its former colour.

If the wine become troubled, either the Kernells of Pine Apples, or Peaches, or the whites of Egges, and a little salt will not faile to cleare and refine it: Others take halfe a pound of Allum, as much Sugar, make a very small powder thereof, and cast it into the Vessell.

*To helpe Wine that begins to wast and die.*

**I**F you by manifest Symptomes apprehend your wine suddenly inclining to degenerate and corrupt, this course is prescribed: If it bee Clarrey, take the Yelke of an Egge, if white, the white add to it three ounces of cleare bright Hones taken out of a running River, make them into a small powder, together with two ounces of Sale, mingle all together, and (the wine shifted into another Vessell neat and cleane, not tainted with any smell beforehand) cast



cast in this Compound; mingle it with the wine five or six times the day, untill three or four dayes bee past. This remedy is not prescribed when wine is absolutely spoyled, for then it would bee applyed to no purpose; but that the carefull Master should by his observation of it to such a disposition, prevent it by this experiment.

*To restore Wine growne musty, unto his former purity.*

**C**AST into the Vessell Cowes milke salted: Some (but to the infinite unhealthfullnesse of him that drinkes it) attempt this restauration with Allum, Lime, and Brimstone, a more undangerous way is to infuse in it Juniper-berries, and Irees Roots: Yet if the wine should continue this ill senting quality, by having taken winde: Let it bee rould too and againe to awaken the spirits thereof, that they may the better disperse the strength of its infusion: after wards set it againe upon his cantling, replenish the Vessel and shut it close to prevent winde for the future.

To preserve Wines from sowing, may bee performed by your disposing of your Vessell in a place that is very coole and dry (the Vessels being very well filled and well stopped) to prevent as well the emission of the spirits, by which the Wine continues vigorous, as the admission of aire. But in regard all men are not the masters of such opportune conveniencies, being forced sometimes to make uses of places obnoxious to heate, and drawing one Vessell along time, cannot hinder the secret invasions of aire; yet if you perceive in time that your Wine begins to harbour an acid or soure quality, you shall preserve it from falling into a full degree of sourenesse; if you take a good piece of Lard, wrap it well in a Linnen cloath, tye it to a small cord, and let it downe by the Bung-hole into the middle of the Wine, still letting it lower as the Wine decreaseth. Some advise, and not without a great apparence of reason, to put into the Vessell, Oyle Olive, or Salade, in such quantity, that it may onely cover the superficies of the Wine: Which Oyle when the Wine is drawne off from the Lees, may bee seperated from them, and preserved.

To take away the waterishnesse and crude ingisture of the wine,

put into the Vessell the leaves of the Pomgranate-tree, though in my opinion such Wine being easily knowne in the East, when first trodden, should be corrected by boyling, as afore.

The remedy against venomous Beasts falling into the Wine, as Adders, Rats, &c. is, so soone as the dead body is found, to burne it and cast the Ashes into the same Vessell, stirring it about with a wooden stick: Others give advice to put hot bread into the Vessell which will attract all the venomous qualities to it selfe, and cleare the Wine.

### *of the Olive.*

**T**HE Vine and Olive being such delightfull associates as to expresse a mutuall emulation for the Glory of fertility when planted together. This Treatise shall not divide them, they are both exhilaratives, the Vine rejoyces the heart, the Olive glads the countenance; and that VIRGINIA may expresse the delight she affords to mankind by being reinforced with this second Sister of laughter, the Olive; this discourse particularly designed to her improvement, shewes its planting and culture when planted.

The Olive tree, though it delight in a rich fat ground; yet if he have a warme aire, and a South, or South-East wind to refresh him, will in all places testifie a bounteous gratitude for its scituation in an almost unlaboured for fertility: Yet to prepare a place for this rich plant to prosper on, his prosperity being no small part of your owne, you must digge the pits where you intend to plant them, a yeare before such implanting; in this pit burne some straw, or which is better castings of Vine or Brambles (but no part of Oake, there being such a particular enmity betwixt this tree, and the Oake, that the Olive not onely refuses its neighbourhood, but dies if planted in the place where the Oake has beene rooted up) or you may leave it to the Sunne and Raine, which will without such a duffion exhale and purifie all infectious vapours: The place being provided to plant upon, we must next select our Plant.

Select your Plants from the Shoots or Branches of those Olive trees which are yong, faire, and fertile. Let them bee in thickness the circumference of an ordinary wrist, in length eighteen inches; plant it the bigger end downewards into the earth, prepared as be-

fore

fore, and ramme the Mould, mingled with Dung and Ashes close about it : Let it be digged every yeare in Autumne. The time to plant it is in April or May, it must not be transplanted for the first five yeares, nor the Boughs cut or pruned till it have attained eight. Graft it not but upon it selfe, so will it beare fruit better in the species and number ; in its transplantation you must take up as much of the soyle with its roots, as you can possible, and when you reset it, give it the like scituation for Coast and Quarter that it had before.

Olives are intended for two uses when gathered ; either to be served up at the table in collation, or to make Oyle of the largest sort of Olive, is most proper for the table, the lesser more particularly convenient for Oyle : They must bee gathered with the least offence to the tree that may bee, the bruising of the branches with Poles as some use it in striking downe the fruit, makes the tree barren : The best way therefore is to ascend the tree by a Ladder, in faire weather (not so much for conveniency of the Gatherer ; as for the profit comming from the Olive, which is not to bee taken from the tree, but when it is exceeding dry) and pulling them with your hand put them into a Wicker Basket, which you shall have carried up with you to that purpose. Those Olives you intend to preserve or pickle, must not have that full ripenesse which is requisite for those you purpose to make Oyle of. The Olives which you keepe for Banquets must be full of flesh, firme, fast, large, and ovall ; if you will pickle them, put them into an earthen pot, and cover them with salt brine or verjuice, or else with Honey, Vinegar, Oyle and Salt smally beaten. If you intend to keepe them long, by changing your salt brine constantly every two or three Moneths, you may effect it.

For the Olives whereof you are to expresse your Oyle, you must gather no more at one time then what may be made into Oyle that day, and the day following : before you bring them to the Presse let them be spread upon hurdles, well pick'd, and cul'd ; let the hurdles not be too thick set with twigs, that the Lees and watry humor of the Olive (which if expresse with Oyle would make it extreame full of sœulency, and corrupts it both in the nostrill and Palate.) may expend, waste it selfe, and drop through ; some there-

fore that this malignant humor may have a full defluxion before they bring the fruit to the Presse, make a high and well-raised floore, with provision of partitions to keep every dayes gathering seperate; (which is, if your abundance be such that your Presse is not able to discharge you of them dayly) the bottome of these partitions must be paved with a decline descent, that the moistnesse of the Olives may flow away, and be received into gutters or little channels there provided for their transfluxe.

The Olives being thus prepared for the Presse, and the Presse readily provided of all things necessary, *viz.* of Fats, Vessels to receive your severall Oyles, scoopes to draw, and empty out the Oyle. Covers great and small, sponges, pots to carry out the Oyle, ryed about by bands or Cords of Hemp, or Broome-barke; the Mill-stones, Oyle-mills, Pressers, and all other instruments serving thereunto being very well cleansed, and the aire having been before as well heated by a plentiful fire; (if it be not warme enough by its naturall situation) for the assistance of heat makes all Oily Liquors resolve and runne more gently and freely, whereas cold astringes, and detaines it. This Presse-house therefore should be so seated, that it may enjoy a full admission and benefit of the South Sunne, that we may stand in need of very little fire, if any at all, such heat being no more assistant to the expression, then necessary to the corruption of the Oyle.

Carry your Olives thus cleansed to the Presse, under which put the whole in new willow baskets (the willow adding a beauteous and innocent color to the Oyl;) the Willow also something staying off the rude strokes of the Presse, that the Olives may be bruised with as little violence, and as much leisure as possible: Nor would it be inconvenient if their skin and flesh were a little broken at the first with a Millstone, so set, that it should not breake the Kernels, which would utterly spoyle the Olive, taking them from the Mill thus prepar'd: let them be stronglier bruised in the Presse, and put foure pound of Salt to every Bushell of Olives. The Oyle which comes first is by much the best, and therefore called Virgin Oyle: the second which comes with more violent expression is fitter for Liniments then the Table: but the last, which is extracted from the drosse, and stones, is of no use but for Lampes; or such sordid employment.

The

The Tuns and Vessels wherein the Oyle is to be put, must be well dressed with pitch and gumme, made very clean with warme Lees, and carefully dryed with a sponge, into which you may powre your Oyle within thirty dayes after the expression of it, so much time being necessarily allowed for the settling the Lees, which by that will have grounded upon the bottome. The Cellars where the Vessels of Oyle are to be conserved, must be in a place of constant drynesse and coldnesse, heat and moysture being corrupters of the Oyle; provide therefore a Cellar on the North coast of your house: and for the better and more neat preservation of your liquor, poure it rather into glasse Vessels or earthen pots, which (if they be made spacious) are far more convenient then the pitch retainers we formerly spoke of.

*Accidents befalling Oyle, with their Remedies: and first to recover frozen Oyle.*

**I**F (in the time of Winter) Oyle doth freeze together with his Lees, you must put into it twice boyled salt, which dissolves and clears your Oyle from all further apprehension of danger, nor need you entertaine a jealousie that it will be salt, since unctuous matters (and especially Oyle) have seldome any relish of it.

*To keepe Oyle from becoming ranke.*

**W**Hen the Oyle begins to change from his first purity of taste to a disposed rankenesse; the remedy is, to melt an equall proportion of wax: and Oyle together, to which you are to mingle salt fried in Oyle before; this you must poure into the Vessel, which composition above the prevention of it, when beginning to grow ranke, effects an entire restitution to its simple purenesse, when already affected. Anniseeds cast into the Vessel by a particular attraction, performe the same operation.

*To purifie troubled Oyle.*

**S**ome are of advice, that the applying it to the fire or Sun recleares it. Others, if the Vessell be strong, cast into it boyling water: how these remedies agree with their former assertions, (wherein they declare heat so unnaturall to Oyle) is beyond my reconciling: I for my part, should rather make an experiment of Vineger, which being cast into the Oyle by degrees, hath such a penetrating and inquired faculty over all the parts, that it would without doubt recompose it.

*To recover Oyle corrupted in the Sense.*

**T**O performe this, take green Olives, pound them, free them from their stones, and cast them into the Oyle: or else cast the crums of Barley bread mixed with corne salt: otherwise, infuse in your Oyle the flowers of Melilot: or else hang in the Vessell a handfull of the herb Coriander, and if you finde the putrifying quality yet unexpelled, cast in divers times of the same herbe, and which is better, change his Vessell; this ill odour others drive away thus: They take Grapes, pick out their Kernells, stampe them, and with Salt make them into a lumpe or lumpes, which you must cast into the Vessell, and after ten dayes faile not to change it: Which must necessarily be done after the application of any remedy to Oyle growne ranke and putrified, the Vessell still impairing what the remedy recovers.

Wee have done with the Oyle Olive, after the manner of whose expression may bee extorted any unctuous matter of fruits, plants, or seeds, namely, Walnuts, Filberds, Almonds (both sweete and bitter) Nutmegs, the Kernells of Peaches, Pine Apples, Abricots, Cherries, Plums, Pistaches, the seede of Line, Rape, Cole, Mustard, Hempe, Poppy, Henbane, the seeds or Pipins of Apples, Pears, Cucumbers, Gourds, Melons, and other such like: But that wee may give the Reader a more cleare dilucidation of the manner of preparation, Wee shall briefly discover the method used in the expression of Oyle from Almond and Nutmegs, which will easily make



make him apprehend all the rest: the parasite or reason which perswades men to introduce the example of Almonds, as because I have purposed before I finish this concluding Treatise, to discourse particularly of the plaine the Almond. Whole Oyle it to bee taken inwards, is to bee thus expressed.

Pill the Almonds after they have steeped some time in warme water, pound them in a Mortar of Stone or Marble with a wooden pebble, make them up in little Lumps or Loaves, which you may knead with your hands against the vapour of warme water, or put them in a glasse vessel of a large content, for some foure or five houres: (let the scate and Glasse bee so contrived, that it may rather bee above the water to receive the vapour on its sides and bottome, then in it) the Almond being thus mollified by the disposition of the moisture, must bee put into a haire cloth or hempen bag, and laid in a presse, whose bottome must be wel heated, hollow, and bending downwards, to give the better delibency for the Oyle thus expressed, you may bake the drossy part of the Almonds under the Ashes, which in time of necessity will serve for bread, of plenty for a dainy and fatning food to your Poultry. This Oyle is of soveraigne excellency to mitigate and remove the throwes and gripes of women newly delivered, and to aswage the paines of the Collick or Reines, taking it in two ounces of white Wine, or one of *Aqua vita*; the Line, Cole, Rape, Walnut, and other need not these curious preparations, and their Cakes are of unmatchable nourishment to fatten Kine and other Cattle.

#### Oyle of Nutmegs.

**O**yle of Nutmeg (which in the South part of VIRGINIA, not subject to any inconveniences of cold would undoubtedly flourish) is thus made: bray them with a wooden stamper, afterwards presse them out, the planks being very well heated; to extract it more rich, divide them into little heapes, and steepe them three dayes in very good Wine, after dry them in the shadow of the Sunne two whole dayes, then heate them reasonably in a frying pan upon the fire, sprinkling them with Rose-water, and presently presse them. This I judge conveniently sufficient for Oyles.

Let us descend to the planting of the Almond-tree, which as it hath a peculiar excellency, so without dispute returns as ample profit.

*Of the Almond tree.*

**T**Hough the Almond tree delight particularly in gravelly places, of which VIRGINIA is too rich to afford a convenience; yet there is no dispute, but if the Mould wherein you plant them bee mingled with Oyster-shells, or such like, of which there is to bee found inexhaustible Quantities; they will have a greater virtue then gravell to the quickning and ingermimating of this tree; having the perplexed hardnesse of gravell and unctuousnesse of marle united. The soyle thus prescribed; let the seat of your Almond be in a hot place fully exposed to the South or South-West; and it will not onely flourish to your expectation; but its fruit will bee excellently qualified; and in vast abundance; its growth very well of the stone, which because it cannot bee procured new should be kept close in a Vessell of earth; to be transported, seelias you would your Peach; it thrives very well too of the branch or scien, which must bee cut from the top of the tree, and planted as the Olive, the earth rammed very hard about it, and prepared as before; both the stone and the scien should bee steeped for the space of twelve or foure and twenty houres in homed water; the best season to set or plant it in VIRGINIA, is in October and November. This tree will bee of admirable use there; in regard that both that and the Olive will hinder no undergrowing Come; let neither this tree nor your Olive grow above ten foot in the stock, and in this as in Olives, if you see any branch aspiring higher then his neighbours, repress such ambition by cutting him off, otherwise hee will divert all the sap of the tree into his owne body, and leave his fellows in a starving and perishing condition; amongst which if you maintaine equality, they will altogether consent in gratitude to returne you a plentiful Harvest.

The barren Almond tree will become fruitfull if you lay open his Roots in Winter, or else if you pierce some part of the Rock close to the earth, and put through the hole a wedge of Oake, watering it about with stale Urine.

The bitter Almond will be a reprieve of bulcration, if you lay round about his hard Root Swines dung tempered with Urine, casting afterwards much mould upon it, this must bee practised yearly, till hee bee perfectly reclaimed, you will finde the same effect. If you bore a hole in the stocke of the tree, and put therein a wedge wrapped about with cloath dipped in Oyl, Beasts by browsing and cropping of the first and tender branches, change the nature of sweet Almonds into bitter Almonds, are gathered when their Huskes through the heats of the Sunne begin to divide; (I should therefore advise that those made choice of to set, may bee taken before such exact ripeness, that the heats of the Sunne may not exhale their generating wigour) if when you have beaten them downe you shell them altogether, and wash them in brine, they will become white, and bee preserved a long time; cautiously that you dry them in the Sunne, their repository or granaries must have good open adornings for an unmoist aire, and I've upon that Coast that is most open to the North-West, being the driest winde in that Country.

The Medicinall excellency of Almonds, is, that they are good for those which are troubled with a clammy steame in their throat, with weak lungs, and such as are subject to the gravell in the Reines or difficulty of Urine, they are great restorers to nature, and fortifie the parts tending to generation; nor is it only beneficiall in its fruit, for the Gumme also of the Almond arrests the spitting of blood.

how he may be brought to recover his strength, and how he may be brought to recover his strength.

**Of the Fig-tree.** The Fig-tree groweth with an unusuall celerity, as beginning to beare the second yeare from his planting, and is of that nature, that during a moneth or five weekes when Grapes are ripe and good to eat, the Figge also is at that season daily mature, and fit for the palate; it may bee planted in the Vine, and affects the same soile; such as have roots grow sooner, but without doubt the branches continue longer; the order you observe in planting the Vine adheare too in this, and it will prosper. The fittest season to plant it is in October, and the succeeding Month to the 15. or

twentieth: You shall cause them in planting the better to take root, if you loosen the barque, or which is better bruise it gently at the nether end of the stemme about halfe a foot. To cause them to bee fertile, and bring forth fruits remarkable for fullnesse and verdure, put to his root rich Mould beaten and tempered with the setlings of Oyle Olive, and mans dung, or which I like better then this stercoration if it have already a benigne soyle, crop the tops and ends of the branches when they first spring.

To reclaim a wild Fig-tree, water him at the roots with Wine and Oyle mixed together.

If you make a composition of an equall quantity of salt brine and water below this irrigation in a small trench round about the body of the tree, your Figges are prevented from unripe fallings.

To have early Figs, water the tree with Oyle and Pigeons dung, if your ambition be not only to have the earliest, but the latest, take away the first Buds, when they are about the bignesse of a Bean.

To keepe or preserve them, lay them in a pot of Honey full and well stopped, but so that they neither touch the sides of the pot, nor one another. Or take an earthen pot (the Figs being put in) stop it close, and immerge this Vessel to another full of Wine, no raine or corruption will possesse your Figges so longed, while the Water retains his goodness.

The plant steeped in brine, or the end thrust into a Sea Onion, becomes much more fruitfull when planted.

This fruit is of great vertue in making the belly soluble in abundance of nourishment and provocation of sweat, dried and mingled with the flower of Linseed or Fenugreece, it resolveth and killeth all Impostumes, and hard tumours, in decoctions it assists much in driving away of the Cough, and difficulty of breath, which last vertue the fruit also expresseth very happily, if steeped in *Aquaviva*, the night precedent, and taken every morning during the dominion of this disease after you, the Milke of the Fig-tree drops into the eare killeth the Wormes in it, the Leaves of the Fig-tree rubbed doe provoke the Hemorrhoides; the juice of Figs is of equall felicity in opening them, which to increase his excellency amends all roughnesse, ill conditioned scabs, small pocks, purples, freckles, ring wormes, and other eye-sid blemishes of the face

face or body therewith anointed, being first tempered with the flower of parched Barley, a little Cotten wool dipped in this Juice, and layd upon the aking tooth asswageth the paine.

*Of the Pomegranate tree.*

**T**HE Pomegranate tree, which may be planted either from the Branch or succour, is one of the most absolute encouragers of an idle person in the world; provided, it be exempt from the intemperate operation of the cold, neither the torrid heat of the Sun, nor the barrenness of the Soyle, shal make him forgoe his glorious Rubies; no culture or dressing is required by it: yet if it be set in a rich soyle, it will be sure to make an advantage of it to his owne flourishing, and your profit: the wine thereof (for it affordeth Wine as well as excellency of fruit) may be made after this manner:

Take the ripe kernels, freed and cleansed from their skins, put them into the Presse, and exact the Wine, keep it in Vessels till it is fully fined from all working, which finished, distribute such a quantity of Oyle as may float over all the top of the Vessel, and this preserves it from sowing or corruption.

The Pomegranate apple put in a pot of new earth, well covered, and luted with clay, and set into an Oven so long, till the Fruit may be resolved into powder, is of very Princely vertue; for (taking the weight of half a crown thereof in red Wine) it miraculously stops the Bloody flux. It is also good in divers diseases of women, which (because they are more arcanelly peculiar to that Sex) I shal forbear to speak of.

*Of the Quince tree.*

**T**HE Quince tree groweth much sooner from the Root then Branches: it delighteth in a soyle of a moyst and cold nature, and would therefore be planted towards the more umbragious and coole corners of your Garden. The Garden, or reclaimed Quince, beareth two sorts of fruits, to which curiosity hath assigned Sexes, and they are called the Quince and Quinceffe; the Male, which is the Quince, is of a more wrinkled, drye, redolent Fruit, and golden colour then the Quinceffe. If you graft the Male upon the Female, or *Esconverses*, the Quinces thence proceeding will be tender,

and may be eaten raw, which without such an Hermaphrodite must of necessity have beene prepared, to which nature, rather then to eate it, crude hath designed it. The use of Marmalade, and its preparation is so publickly known, that it is unnecessary to repeat it.

It is not enough to enjoy the delight of these fruits for the Summer onely: The Winter too in reason should claime a part of our Summer contentments, which cannot bee better expedited then by trying such fruits as are capable of a refaction, and agreeable when dried, the principall whereof are the Vine or Grape, the Fig, the Peach, and Abricot.

*How to dry Grapes, that they may bee kept.*

**Y**Our Grapes being at their just ripenesse, select the fairest out of your Vineyard, for such quantity as you shall use, let them lye thin spread while you prepare a Lye for them, made of faire water and Ashes, proceeding onely from the eartings of the Vine without any other mixture of wood whatsoever: seeth this lye till you have made a strong and cleare liquor, then taking or straining away the Ashes, put the liquor into a cleane Caldron, set it againe over the fire till it bee ready to seeth; then tying the stalkes of your Grapes with thread, and fastening the thread to such sticks and in such order bunch by bunch, as Chandlers use to dip their Candles, which dip them into this lye foure or five severall times: Which done, let them dry in the Sunne, either so hanging on their sticks, or which is better upon Lattices or Hurdles of Reeds, or the like, untill they bee conveniently dry; then barrell them, pressing them very hard and flat in the Vessell, others dry them upon such Lattices or Hurdles without keeping them even as they come from the Vine, and peradventure more successfully.

*How to dyle Figges.*

**L**ET them (as the Grape.) bee gathered very ripe; then lay and spread them upon Hurdles or Lattices of Reeds or Osier joyned together, with rifts or vacancies betwixt the covering of those



those Officers, that the aire transpiring through those voyd spaces may assist the Sunne in the drying them ; but you must bee cautious that during their exposure to the open aire no Raine or Dew incommode them : When they are dry barrell with the same poise of pressure used to the Grapes. Others take a bigge Reed or Cane of two or three foot in length, boring little holes all the length of it, through which they put little sticks of two foot extent, being the small and sharpe upon which they thread the Figs, till they are very full of them, and so hang the Cane in the Sunne, which dried they barrell up using the same course as before.

*How to dry Peaches and Abricots of all sorts.*

**W**Hen they are very ripe, pare off the upper skin, cleave them into foure quarters, dry them as you did your Figs, barrell them and keepe them for the Winter.

The manner how you shall prepare them to eat is this ; provide an earthen pot, and after you have washed your Peaches in faire water, put them into the pot with as much Wine as will cover the Peaches, then sceth them halfe a quarter of an houre. They may bee made ready without boyling thus ; let them infuse three or foure dayes in Wine, (which way they are much better) put to them beaten Cinnamon, and thus they will last a Moneth in the Wine, eaten every morning they are very wholesome, and provoke a good appetite.

*The fittest seasons for sowing of seeds.*

**T**O prescribe Rules according to our Climate, to that of VIRGINIA, may have much of affection, but without all peradventures, little of Wisdome. Wee must therefore seeke for a nearer correspondence in parallels. Having therefore scene some letters of an ancient date written by Frenchmen, then employed in VIRGINIA, to their Intrusters, wherein they confesse that of all the Provinces of FRANCE : None came so neare to that noble Countrey, as LANGUEDOCK and PROVENCE, two of the Eyes of that Kingdome, abounding withall the delights and delicacy

cacy that ITALY can pretend to, or SPAINES boast of ; I could not but apprehend that their times of sation and infusion, of planting and replanting, might in some measure correspond with that place where the English are now seated, and having seen a regular distribution of the moneths and seasons in the year for sowing, grafting, and other offices belonging to the industrious Lovers of Agriculture ; I should both unsatisfie my owne conscience, and disoblige that Countrey, and its Christian Inhabitants, if I did not publish it with the same resentment of affection I received it ; nor that any should bee so pinioned to these Precepts, that neither weather, inconveniency, or want of opportunity should make him recede from the punctuall observation of them : But I speake it out of a very strong confidence that the observations of the seasons according to these prescriptions will sort well with VIRGINIA in generall, and the Planters in particular, to whom it is intended, and indeed it is as exact a Directory as any yet published.

I am not ignorant that Criticks will laugh at this ; much good doe it them, and why so many Moneths for the same seed ? Why so many Repetitions ? My Exceptionist forgets that wee not onely cover to have things early, but their continuance : Will it offend him that wee have Artichokes in May ? and July both ? Because wee may have Cabbage, Lettuse in April, shall wee bee forbidden to have any in May: the principall scope of this director was to show how long such and such seedes might bee continued to bee sown, and in what Moneth and Moone, if hee apprehend it not ; I can send him to no Moneth, but that of June, nor Moone, but that of Midsummer.

the that will sow seed, must know that,

Some may  
be sowed at  
all times of  
the Moneth  
and Moone,  
as,

Asparagus,  
Colewort  
of all sorts,  
Spinage,  
Lettnic,  
Parfnips,  
Reddish.

Others would be sowed in  
a certaine Moneth and  
Moone, as these must bee  
sowed in February, the  
Moone being

New

Full

Old

Spike  
Garlike  
Borage  
Buglosse  
Cheruse  
Coriander  
Gourds  
Water cresses  
Majorane  
Palma Christi  
Flower gentle  
White Poppy  
Purslane  
Radish  
Rocket  
Rosemary  
Sorrell  
Double Marigold  
Thyme  
Anise  
Violets  
Blites  
Skirworts  
White Succory  
Fennell  
Parsley  
Holy Thistle  
Cole Cabbage  
White Cole  
Green Cole  
Cucumbers  
Hare-horns  
Sampier  
Dyers graine  
Spinage  
Cabbage Lettuce  
Melons  
Onions  
Larkes-bee  
Burnet  
Leekes

(74)

Sow in March the Moone being,

New

Full

Old

Garlick  
Borage  
Chervile  
Coriander  
Gourds  
Majorane  
White Poppy  
Purslane  
Radish  
Sorrell  
Double Marigold  
Thyme  
Violets  
Anise  
Bleets  
Skirwits  
Succory  
Small Marigold  
Apples of Love  
Marvellous Apples  
Artichokes  
Basil  
Thistles  
Pink Thistle  
Cole Cabbage  
White Cole  
Greene Cole  
Citrons  
Cucumbers  
Harts-horne  
Sampire  
Dianthus  
Spinage  
Gilly-flowers  
Nysop  
Challenge  
Melons  
Onyons  
Fennel  
Burnet  
Leches  
Savory

Sow in April  
the Moone beingIn May in the  
old of the Moone

In June the  
Moone  
In July the  
Moone  
In August the  
Moone being

Majorane  
Flower-gamell  
Thyme  
Violets  
Apples of Love  
Marvellous Apples  
Artichokes  
Cabbage-Cole  
Citrons  
Harts-horne  
Sampire  
Gilly-flowers  
Blessed Thistle  
Gourds  
Radishes  
Melons  
Cucumbers  
Succory  
Cabbage-Lettuce  
White Turneps  
Savory

Herbes

Herbes growing of seedes that are sowne may bee transplanted at all times, except Chervils, Arrage, Spinage, and Persely, which are nothing worth when they are transplanted; ever observed that such transplantation bee in a moist, rainy weather, otherwise they must bee very diligently watered.

You may take notice that the choise and age of seedes is double, in chusing them you are to regard that they bee ripe, full, heavy, firme, grosse, and of a good colour, not falling to powder shrough rottenness or bruises.

Some grow better of new seedes, as Leeks, Cucumbers.

Others grow better of old seeds, as Coriander, Bensley, Savory, Beets, Origanum, Cresses, Spinage, Poppey.

Further observe, that you must preserve from cold, Lettuses, Artichokes, Bassill, Cabbage Cole, Diersgraine, Melons, fiftene dayes after they put forth from the earth.

Make account that seedes thrive and prosper much better, when they are sown upon such dayes as are betweene the extremes of cold and heate, then in hot, cold or dry dayes.

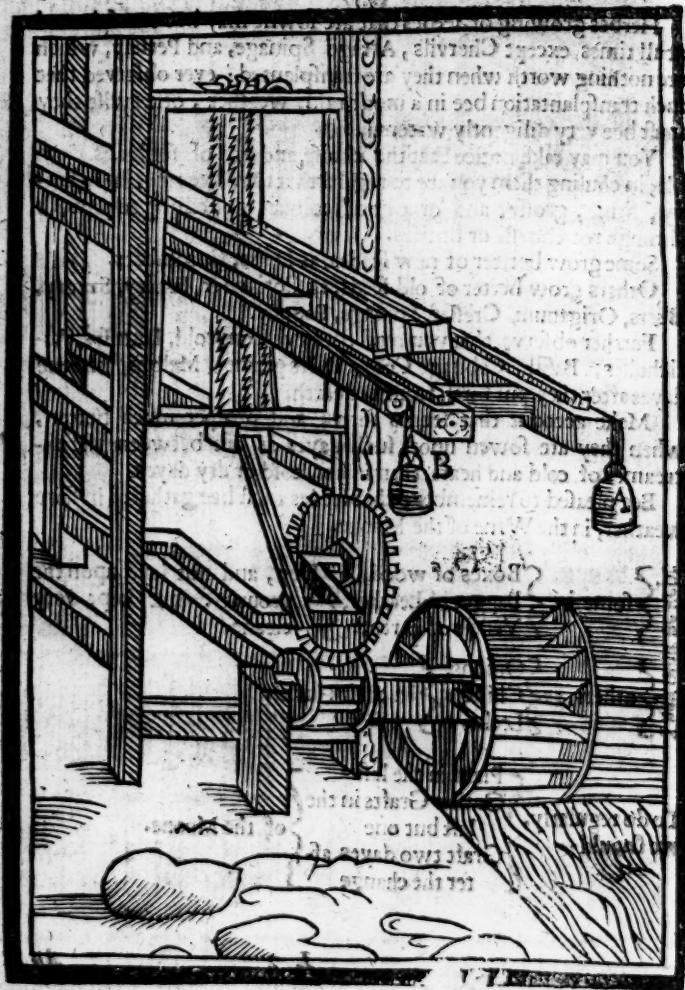
Be pleased to remember, that seedes must bee gathered in faire weather, in the Wane of the Moone.

|                   |           |                       |                              |
|-------------------|-----------|-----------------------|------------------------------|
| They must be kept | { some in | { Boxes of wood,      | { Dry, and not layd upon the |
|                   |           | { Baggies of Leather, |                              |
|                   |           | { Vessels of Earth,   | { cleane.                    |

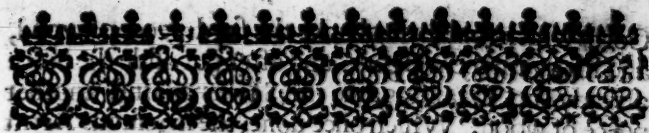
  

|                   |              |            |                   |
|-------------------|--------------|------------|-------------------|
| They must be kept | { others, as | { Onions,  | { In their Huske. |
|                   |              | { Chibols, |                   |
|                   |              | { Leeks,   |                   |

|                               |                     |                        |                 |   |
|-------------------------------|---------------------|------------------------|-----------------|---|
| To do regularly,<br>we should | { Plant in the last | { Gather Grafts in the | { of the Moone. |   |
|                               |                     |                        |                 | { last but one                          |
|                               |                     |                        |                 | { Graft two dayes af-<br>ter the change |







*An Explication of the Saw-mill, an Engine, wherewith  
force of a wheele in the water, to cut Timber  
with great speed.*

**T**HIS Engine is very common in Norway and Mountaines of Sweden, wherewith they cut great quantity of Deal-bords; which Engine is very necessary to be in a great Towne or Forrest, to cut Timber, whether into planks or otherwise. This heere is not altogether like those of Norway: for they make the piece of Timber approach the Sawes on certaine wheels with teeth; but because of reparations which those toothd wheeles are often subject unto, I will omit that use: and in stead thereof, put two weights, about 2. or 300. pound weight apiece, wherof one is marked A. the other B. The Cords wherewith the sayd weights doe hang, to be fastned at the end of the 2. peeces of moving wood, which slide on two other peeces of fixed wood, by the meanes of certaine small pulleys, which should be within the house, and so the sayd weights should alwayes draw the sayd peeces of moving wood, which advancing alway towards the Sawes rising and falling, shall quickly be cut into 4. 5. or 6. peeces, as you shall please to put on Saws, and placed at what distance you will have for the thicknesse of the planks or bords ye will cut: and when a peece is cut, then let one with a Lever turne a Rowler, wherto shall be fastned a strong

Good, which first being backe the said peece of wood,  
and lift again the weights; and after put aside the peece  
already cut, to take againe the Sawes against another  
peece of wood. Which once done, the ingenious Artist  
may easily convert the same to an Instrument of thresh-  
ing wheat, breaking of hempe or flax, and other as pro-  
fitable uses.

**FINIS.**

